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ABSTRACT

The document contains nine conference papers which address several approaches to assessment of deaf blind children. Entries include the following titles and authors: "Parent-Teacher Relationships and the Deaf-Blind Child" (M. Schleifer); "Congenital Rubella--The Teenage Years" (P. Ziring); "Psychological Assessment" (guidelines for assessing the deaf blind or otherwise multihandicapped child) by D. Overbeck; "Functional Visual Assessment of Deaf-Blind Children" (M. Efron); "Professional Burn-Out--How to Avoid It" (L. Spaniol); "Educational Assessment" (P. Busset); "Assessment for Prevocational Training" (R. Leccurs); "Audiological Assessment" (assessment of auditory threshold, auditory discrimination, auditory recognition and comprehension, auditory discomfort, auditory localization, audition supplemented by vision and taction, auditory monitoring of speech, and other communication abilities) by E. Sheeley; and "Assessment Techniques in the Classroom" (D. Bremer). (SBH)

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Assessment and Education of Deaf-Blind Children

Proceedings of the Special Study Institute Held in Los Angeles, March 17-19, 1978

CALIFORNIA STATE DEPARTMENT OF EDUCATION
Wilson Riles, Superintendent of Public Instruction
Sacramento, 1979

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Preface

Good communication between the teacher and parent is vital to the development and maintenance of an effective educational program for the deaf-blind child. Current federal legislation even mandates the involvement of the parent in the child's education.

The recent rash of rubella epidemics among adolescents has surprised some epidemiologists. These young people, who are products of the rubella epidemic of 1964-65, are presenting a host of problems for the medical community and society at large.

People are facing burn-out in almost every discipline. Even young people who are just beginning their careers are experiencing this phenomenon. Different ways that we can avoid burn-out are discussed in this publication.

The assessment of deaf-blind individuals continues to attract attention from educators of the deaf-blind. Are we still groping for adequate answers? Do our current methods give us the answers we are seeking? Are we doing something wrong?

Several approaches to the assessment of deaf-blind children are described in this document, and each contributes to the knowledge we seek to help the deaf-blind achieve the independence we desire for them.

WILLIAM A. BLEA
Project Director,
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Parent-Teacher Relationships and the Deaf-Blind Child

Presented by Maxwell J. Schleifer, Ph.D.
Editor-in-Chief, *The Exceptional Parent;*
and Professor,
Department of Psychology,
University of Massachusetts, Boston

In this presentation I will try to describe my own framework for understanding the parent-professional relationship, trace my changing views of this relationship, and then apply these ideas to the parent-teacher relationship in the education of the deaf-blind child.

Let us first look at some of the factors that shape parental participation. Parents are increasingly included in educational planning for children with disabilities. This trend stems from the increased understanding on the part of educators that parent participation and parental support shape the effectiveness of a plan. In addition, federal and state legislation requires that the parent be present at the decision-making conference.

Not long ago parents were held to blame for their child's educational failure. The parents and their child bore the burden for the educators' lack of commitment or ability to provide any kind of programming. Parents, overtly or covertly, were expected to keep children with disabilities away from school or to accept whatever marginal programming was available. If parents had the temerity to challenge these educational practices, they were "accused" of either being unable to accept the limitations of their child's development or of causing further damage to their child.

Ultimately, the parents were left to feel that, because they produced the child, they were to blame for whatever problems the child had in finding educational opportunities.

In recent years parents and professionals have begun to document the variety of unfortunate professional reactions and attitudes toward parents whose children have disabilities. These negative professional behaviors range from a lack of knowledge on the part of the professional to derogatory attitudes toward both parent and child. Parents have experienced professional insensitivity from the initial diagnosis of their child's disability all the way through the searching for educational and rehabilitative programs. Too often parents would meet professionals who generally felt hopeless and helpless themselves, who did not listen carefully to the parents' experiences, and who retreated to the belief that not only did they know the answer at present (i.e., that nothing could be done) but "knew" this would be the answer for all time.

These reactions of the professional often found fertile ground in the psychological lives of the parents. A child with a disability has an impact on the parents' feelings about themselves. The literature describes parental reactions ranging from the loss of self-esteem, shame, ambivalence, depression, to withdrawal. The impact is not only on the parents, but on siblings and relatives. The impact contributes to the family's feelings of vulnerability and insignificance.

Recently, researchers have looked at the "typical" stages of reaction to crisis. This work has provided a basis for the early intervention and support programs that have been proving so helpful.

Many suggestions have been offered about how to make the parent-professional relationship more effective. There is a new recognition of the role the parent has in the life of the child. Parents have a great body of experience with their children—from the earliest time on. Parental reaction to the child is shaped not only by their own life experiences and attitudes but by the real behavior of their child. A rehabilitative or educational plan must enlist parental cooperation. Because so many things have to be done in the general life of the child, the parents must understand their child's program. The program must be adapted to the style of the family. Parents are able to make adaptations, but their efforts to shape their child's program or its implementation are limited.

More positive attitudes toward parents have provided a most opportune time for developing effective partnerships between parents and educa-

tors. Practical suggestions which are increasingly present in the literature are helpful but insufficient for helping the teacher develop and evolve patterns for themselves in their work with parents.

Teachers receive little training to prepare them to work with parents. Parents usually are seen at school only at P.T.A. functions or at times of crisis. The P.T.A. functions usually are perfunctory requirements for teachers, whether or not they are interested in participating. Crises generally are poor times for people to really learn to respect and understand each other in the fullest way.

Teachers have not been presented with a conceptual framework that provides direction for parents and teachers in ways to make their collaboration fruitful. Conceptual frameworks are important for many reasons. Educators and parents can communicate their experiences in a systematic way. Theories can help us evaluate the implications of our reactions and provide guides for the future of our work. The theories that are needed have to take into account the experiences not only of the parents and the children, but of the teachers themselves.

The teacher, in working with parents, is dealing simultaneously with at least four stages of experience: that of the mother, the father, the child, and the teacher. The educator must select from the flux of experiences what he or she should pay attention to. What is required is a conceptual framework broad enough to accommodate and relate the concepts and formulas used in educational practice and in parent-professional relationships. The framework should incorporate new insights that are based on work experience; and the framework should be capable of being changed.

I would like to review some earlier ideas and attitudes about the relationship between children and their educators (parents and teachers). For many years the child was viewed as having a responsibility to pay heed to his or her elders. Children were expected to learn from observing the behavior of the adults. If the children had difficulty in learning, they were considered responsible for the failure. By the 1940s, with the advent of psychological notions of the role of the parents in the upbringing of the child, when a youngster had difficulty in learning, greater attention was paid to the role of the parents, particularly the mother.

At one point in the not too distant past, there were few psychological, emotional, or intellectual failures in the child that could not be attributed to the mother. It was only in more recent years that we could expand the role of "blame" to the father. After this period of attributing responsibility and blame to the parents, attention was then focused on the teacher and the school environment. In more recent years the youngster's difficulties have been attributed to the shortcomings of the school personnel. Throughout each time period there has been a particular search for a villain. Each period had its own wisdom. One must recognize that each child, parent, or teacher must adapt to the needs of the other: (1) the parent to the needs of the child and the school; (2) the child to the needs of the parent and the school; and (3) the school to the needs of the child and the parent.

My central hypothesis is that, in educational situations, the educator and child must learn from one another how to promote, in the child, not only skills, but those attitudes and problem-solving behaviors that are crucial for the mastery of the changing challenges which an individual meets throughout his or her life. Each person who is involved in the growth of the child must be considered an "educator." Parents, teachers, group workers, child psychologists, psychiatrists, and recreational workers are all educators. The work of each of these educators takes place and is intertwined with the whole range of the child's educational experiences.

Such a framework integrates the parent-teacher relationships with the education of the child. I want to share with you some clinical and research experiences that have changed my attitudes and beliefs and led to this framework.

Some years ago I was involved in a demonstration day hospital program for seriously emotionally disturbed children. At the end of three years, we had successfully developed a program for 20 children and their families. We discovered that, although the program was successful, no one was willing to continue the funding—neither the federal government, which initially supported the program, nor the state government.

The parents wanted something continued. As I examined the various staffing and funding problems, I decided that I might be able to help the parents run a summer program. The most important part of the experience was working with the parents in roles other than as patients. I was able to see parents functioning in ways that had never been "visible" as long as we were discussing their relationships with their seriously disturbed child. They were effective planners, fund raisers, and programmers. As individuals they were complex, varied, and interesting. However, I began to feel a compartmentalization, both by myself as a clin-

ician and as a parent, in terms of what was shared.

Parents often complain about this "compartmentalized" picture. In their role as parents of a child with a serious problem, they had difficulties. In their uncertainty they felt helpless and defeated. The parents needed a model to show them that they could function differently in other places.

When I pointed out how well they could do so many things, and that they never mentioned these, they would say their problem was with the child and they thought discussing other areas was unrelated to their work with the child. I realized that their sense of competence as people was not available to them in dealing with their sense of competence in their roles as parents where they considered themselves "failures."

When they had opportunities to do work that contributed to their own self-esteem, they were able to tackle the more difficult problems in their relationships with their children.

I will now examine the parent-professional relationship. When I was the research director at a psychiatric clinic for grade school children, the staff was involved in developing a research plan. Part of the plan was to use data derived from the clinical interaction with families for the systematic examination of the contribution of parental attitudes to their children's development of antisocial behavior.

To avoid the problems posed by the quantity of data obtained during the clinical treatment of families, members of the staff decided to restrict their initial interest to the diagnostic phase of the contact with the child and family. The usual clinical diagnostic studies provided us with a great deal of information; the studies had been clinically relevant and had enabled us to sketch the broad outlines of some approaches to treatment. We attempted to formulate a hypothesis that could be illuminated by the data available from the diagnostic phase of the contact. We asked what we as clinicians desired to understand about the family from the diagnostic process. We tried to make explicit the methods by which we defined terms and organized information.

First we examined the purpose for which families contact a clinic. Parents come to a clinic for help in changing the maladaptive behavior of their child. The clinic staff should not assume what kinds of help or change the family desires or requires. This should be made clear during the diagnostic process. For example, parents with antisocial children quite often want us to intervene with the school, so that the school staff will no longer bring pressure on the family because of the child's antisocial behavior in the classroom.

Then we reviewed the considerations that have led child psychiatric clinics to involve parents in studies of treatment. This common practice is derived not only from a need to obtain information from them. We have learned repeatedly how the attitudes and behavior of parents toward the clinic and the child are crucial in facilitating and maintaining any change in the child.

The purpose for seeing a child in diagnostic study is to assess the child's capacity to use an adult in the process of altering current maladaptive behavior and redirecting energy in a more constructive fashion. The ability of the parent to allow this to happen is related to the child's ability to alter his or her behavior. Thus, the staff derived a hypothesis that I feel is relevant to the relationship between parents and professionals. The parental response to the need for change in a child is related to the child's readiness to change to more appropriate, adaptive, and socially acceptable behavior. The ability of the parents to use helping agents on behalf of their child shapes the child's readiness to use these helping agents to change his or her behavior.

The clinic's staff elaborated this hypothesis and began to understand the problems of parents who have children with different problems.

I will now turn to the study of parent-teacher relationships at a day-care center. The center's staff wanted to determine if the preschool child could successfully separate himself or herself from the family in order to go to school.

Members of the staff examined the role parental attitudes toward substitute care had in shaping the child's ability to use the substitute caretaker for constructive channelization of energies. The parents' previous experience with substitute caretakers—babysitters, physicians, and nurses—had shaped the way the parents related to the nursery school teacher. Further, their relationship with the child and teacher influenced the child's pattern of relationships at the nursery school.

In the midst of this study, I observed the large number of children who were dropping out of the day-care program during the year. In my association with the nursery school as a consultant, I had been impressed by the ability of the staff to help the most seriously disturbed children sustain themselves. However, while both the staff and I were focused on this group of children, a large number of other children were leaving the program.

A student and I then conducted one of the first studies of day-care center dropouts. There were 39 children who withdrew from the nursery school during the course of that year. They were readily divided into three groups. On the basis of the time spent in nursery school, 13 children spent less than a month, 13 spent between one and three months, and 13 spent more than three months before they withdrew.

The children who spent less than a month came from families where the mother was young and had at least three preschool children. The child with whom she got along most poorly was the one selected for nursery school. Because of her ambivalent relationship with the child, the mother found it difficult to sustain the energies necessary to prepare the child for school and bring him or her back the same day.

In the group where the children stayed more than three months, some current realities of the situation brought out old fears in the mother. The mother's preoccupation with these fears made it difficult for her to allow the child to leave her. One of the most common things in the lives of these young mothers was a new pregnancy, which aroused the fears and anxieties stemming from a previous miscarriage.

In the group that was most interesting, the parents were able to keep their child in the day-care center for about a month, but less than three. These were mothers in their early thirties with two other children. They had a good relationship with their youngster, but they felt that they would not be able to provide constructive experiences during the day, particularly since the child's other friends would not be around. The child after a month was away from school for about a week, either because of illness or school holiday. During this time the mother discovered that she could have a good time with the child at home and was able to keep the child both interested and active. When it came time to return the child to school, the mother decided that it was no longer necessary for the child to participate in the day-care program.

When the parents in this group were interviewed, the staff discovered that the parents had replicated the day-care center structure and activities in their everyday life with the child. The child had juice time in the morning and nap time in the afternoon. The parents had purchased many of the books, puzzles, and games that the child had been using at school. They adopted some of the socialization aspects of the day-care center; for example, the setting of the table with napkins and knives and forks. This was the first time that I noticed the impact that the children could have on their parents. We have so often focused on the adult's impact on the child; we have not scrutinized the impact of the child on the parent. In this situation the parents learned from the child on the basis of experiences that the child had at the day-care center.

About the same time I had another opportunity to observe the striking impact of the disabled child on a mother. I thought this experience not only might shape the mother's future relationship with the child but, if not dealt with, might result in the kinds of helpless, anxious parents so often described in the literature. This was a study of newborn children. The mothers were followed from the third trimester of the pregnancy through the first month of delivery. These were mothers who were having their first children and who were anxious about whether they would be able to take care of a young child. They were not sure they would know what to do or when to do it. We observed that the child's behavior, when presented to the mothers for the first time, had a very reassuring effect. The babies grasped—they seemed to physically thrust themselves upon their mothers. The mothers reported how relieved they were when they recognized that the child could respond—would try to help them do the work that they as mothers had to do.

Such exciting encounters were in sharp contrast to the presentation to a mother of a child who had some form of brain damage. The infant was unresponsive and would lie limply in its mother's arms. The mother tried frantically to enter into the child's life. She had minimum cues to help her and little response, no matter what she did. The mother became increasingly anxious and depressed as she began this long-term venture in trying to shape the behavior of her child, with so little help from the child.

This need for the parents to learn from and on behalf of their children was illuminated by a study of the use of health services for children in a housing project. This study was part of an effort of a home medical service to review and restructure the way it delivered services to families. Fourth-year medical students were assigned families for whom they would supply basic medical care. Over the years this service had become a trusted and valued part of the community's health care provisions; however, it was used almost solely for prevention. The interviewers explained that they

were visiting the home to get some sense of what the parents wanted on behalf of their children. The parents were asked when and why they requested medical service, what service was received, and how they felt about it.

One group of mothers used the major preventative services of the program. The mothers themselves were involved in early prenatal care, and their children required various immunizations and checkups. The mothers called the medical services judiciously. They were familiar with some illnesses such as colds and flu, and they knew various ways of dealing with these.

Another group, which did not use the routine preventative services either for themselves or for their children, seemed to use the medical services judiciously. They were quite similar to the first group of parents in their pattern of use. Both groups of parents in their own way were frustrating to the medical students. The following vignette characterizes their behavior.

When the parents would call, the medical student would arrive and examine the child. Perhaps the child's symptoms were high fever and aches and pains. When the student would inquire as to what the parents had done, they would indicate that they had put the child to bed and had given him or her aspirin and lots of liquids. When asked why they had done this, they would explain that the last time that a child was sick with the same symptoms, the doctor had given similar advice.

Two other groups of mothers did not use the preventative care services. Also, they tended not to profit from their previous experiences with health services for their children. The children often were in the same medical crisis, and the parents failed to call in time to prevent it.

The most important aspect of parental behavior is the consistent commitment to learn from and on behalf of children. This commitment is what permits parents to "make mistakes" while dealing with their own children. The youngsters respond not only to whether they feel understood, not only to whether the behavior is helpful, but to the belief that there is an investment in them.

Various psychological forces interfere with the ability to consistently orient oneself to understanding the needs of the child. One is the level of personality organization in the parent. The disorganized or immature person is still struggling to have his or her own needs met. The parent may not be able to understand the needs of the child. The needs of the child may be seen as an impingement upon the parent's own needs to understand himself or herself. This is part of everyday life for a youngster.

The ordinary problems of living may have an effect on the parent. The parent may have thoughts on his or her mind that transcend any ability at a given moment to pay attention to the youngster. One may come home at the end of the day from difficulty at work and be preoccupied with dealing with the things that have not been resolved. Several members of the family may have more pressing issues at that moment. But these are transitory states, and the child recognizes the real investment. This is different from the child whose parent's behavior is unpredictable. This is one aspect of the conditions that lead to child abuse. A parent with an infantile personality can often be kind and loving, but when his or her own needs are interfered with, may unpredictably lash out at the child.

The child can have two different kinds of impact on the parent. The first is the psychological impact of the child's disability on the parent. Authors have indicated the extent to which a disabled child interferes with the parent's self-image.

The disabled child also affects the parent's sense of competence. The parent is unable to learn from the child and to help the child grow. This is the key to the idea that the learning-disabled child has learning-disabled parents. This failure to learn can undermine the parent's sense of competence. Parental sense of competence is the key to the parent's retaining a consistent commitment and being able to continue the struggle to learn.

One expects the same consistent commitment from teachers to learn on behalf of their students. Again, we have to understand the various psychological issues that can interfere with this learning. We must first set aside the issue of personality disorganization. There is no question that the psychological disorder of a teacher can interfere with his or her ability to learn on behalf of any child. The literature is replete with illustrations of this. However, this does not represent the ordinary teacher—nor does it represent the ordinary special class teacher.

It is not by chance that a person selects a particular career and within that career a particular group of individuals or children in which to invest his or her life. Teachers have to make explicit to themselves the psychological meaning of their work. Their various roles within that work have to be articulated in order to identify the psychological issues that may be relevant to their ability to learn from and on behalf of the child.

Congenital Rubella: The Teenage Years

Presented by Philip R. Ziring, M.D.*
Medical Director, Willowbrook
Developmental Center, Staten Island, N.Y.

The large-scale epidemic of rubella in the United States in 1964-65 resulted in the birth of approximately 20,000 children with serious, related congenital defects.

The spectrum of transient and permanent clinical findings seen in the newborn period in children with congenital rubella has been well characterized. Transient disorders most commonly include such features as thrombocytopenic purpura, bone "lesions," and pneumonitis. Permanent disorders include serious eye defects (cataract, glaucoma), sensorineural hearing loss, congenital heart disease, and various manifestations of brain injury wrought by congenital rubella encephalitis, including mental retardation and cerebral palsy.[1]

It was found that infants with these disorders were likely to shed rubella viruses from many sites—especially the throat—during the first weeks of life. Many continued to excrete virus for months afterward. This rubella shedding occurred despite the presence of high levels of circulating rubella antibody, much of it in the IgM class.[2] Specimens obtained from abortion would frequently yield rubella virus from virtually all fetal tissues; this was also true of newborns.

Sophisticated techniques now available for measuring cell-mediated immunity were not readily available a decade ago, but unpublished studies by me and my colleagues demonstrated that some infants with congenital rubella could not be sensitized to customary doses of dinitrofluorobenzene as compared with age-matched controls. Children with this defect appeared to revert to normal after a few months, and they would then respond appropriately to dinitrofluorobenzene on patch testing. This suggested that although the child's B-cell function was intact, there may have been some early, nonspecific deficit in T-cell function, brought about by infection in utero and manifested by transient impairment of delayed-type hypersensitivity.

Besides the transient disorders of the newborn and the permanent sequelae of congenital rubella described above, we have recently been made aware of additional new problems such children may encounter that are directly attributable to rubella infection in utero but whose clinical expression may be delayed until the adolescent years. The endocrine and neurologic disorders among this group have been best characterized, and it may well be that other diseases of late onset, such as malignancies, are related to this congenital infection.

Children with congenital rubella who are the product of the rubella epidemic of 1964-65 in the United States are only now beginning to go through adolescence, and they are presenting a host of problems for the medical community and society at large. The Rubella Project currently has approximately 600 children with this disease in active longitudinal follow-up; most of these children are adolescents. The purpose of this report is to inform the pediatric community of some of our experiences with the problems now facing this group in the light of new scientific information.

Since the licensure of live rubella virus vaccines in the United States in 1969, more than 70 million doses have been administered, principally to a target population of infants and preschool children. This immunization effort seems, for the present at least, to have brought a halt to rubella as an epidemic menace in the United States. Nonetheless, sporadic new cases of congenital rubella continue to be reported, and scattered outbreaks of rubella continue to occur in unimmunized females of childbearing age. We expect, then, that children with congenital rubella will continue to be born, albeit at a rate greatly reduced from that existing before the "vaccine era," and that pediatricians will have to remain informed about the problems such patients may have throughout early childhood and adolescence. Congenital rubella continues to serve as the prototype for the study of congenital viral infection in general, and the information gained from the study of children with congenital rubella may have much broader applicability to children with other types of congenital

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infections who may have obvious birth defects or other manifestations of disease of late onset.

Clinical Manifestations

Clinical manifestations of congenital rubella include hearing loss, eye disorders, cardiovascular disease, urogenital disorders, and endocrine disturbances.

Hearing Loss

Sensorineural hearing loss is the most common clinical manifestation of congenital rubella and a leading etiologic factor among children attending large public schools for deaf children. For example, of the 650 children attending the New York City School for the Deaf, 22 percent have been diagnosed as having congenital rubella. Hearing impairment secondary to congenital rubella results from destruction of the hair cells in the organ of Corti, the extent of which may vary considerably from child to child. Consequently, hearing loss may be bilateral or unilateral and can vary from mild (with no clinically significant impact on speech development) to profound in degree. Early detection and characterization of the extent of hearing impairment in the young infant are crucial to the determination of the need for hearing aids and the potential for development of oral communication. Audiometric testing of the young multihandicapped deaf child (deaf-retarded, deaf-blind) remains more of an art than a science, and the procedure requires ongoing reassessment and modification. The treatment plan is best developed by an interdisciplinary staff, which may include physicians, special educators, social workers, psychologists, and speech and hearing personnel. It has become increasingly clear that many children with congenital rubella have speech and language difficulties that are far out of proportion to the severity of hearing loss. These children illustrate the special problems of rubella-induced injury to the language centers of the brain. Such central auditory impairment may accompany the hearing loss or may be present as an isolated deficit and may require referral to special educational programs for "aphasic" children.

There have been occasional anecdotal reports of children with congenital rubella who developed progressive hearing loss as they reached later childhood and adolescence. The reasons for this are unclear, but fortunately such experiences seem to be very uncommon.

Eye Disorders

Congenital cataracts (unilocular or bilateral) and glaucoma are the most common serious eye defects in children whose mothers contracted rubella during early pregnancy. Longitudinal follow-up of the group affected by the 1964 epidemic has indicated that children who had a successful outcome from bilateral cataract surgery performed at approximately one year of age at the Rubella Project continue to have useful stable residual vision and function with partial sight. Since children with cataracts and congenital rubella most commonly have additional associated handicaps, such as hearing loss and evidence of brain injury, this residual vision has often been an important channel for rehabilitation efforts, such as the use of sign language in appropriately selected subjects. As with normal children going through adolescence, the eyes of children with congenital rubella undergo a growth spurt in globe diameter, which may lead to myopia. Since such sensorally impaired children are so dependent on their vision, it is imperative that careful vision testing be performed on at least an annual basis for early detection and remediation of refractive errors. There still appears to be no evidence that the characteristic "salt and pepper" retinopathy seen in many children with congenital rubella has any effect on visual functioning.

Cardiovascular Disease

Since the various stages of embryologic development of the heart are largely completed by the eighth week of pregnancy, rubella contracted after that time generally does not result in the manifestation of congenital heart disease. On the other hand, a variety of anomalies can be present as a result of rubella contracted before this period—most commonly patent ductus arteriosus or anomalies involving the pulmonary artery or its branches. In general, we have been principally concerned with patent ductus arteriosus as the lesion of greatest hemodynamic significance. Increased attention has been focused on the management of children with stenosis of the pulmonary infundibulum and valve after a few adolescent children have come to surgery for evidence of clinical and laboratory signs of cardiac difficulty. Though our patient population is being followed closely for the possible appearance of systemic hypertension, this condition does not appear to be associated with an increased incidence beyond that seen in the general population.

Urogenital Disorders

Congenital rubella is associated with a significant likelihood of the appearance of urogenital anomalies. Of 316 boys in our program, 111 have some anomaly. These include 39 with cryptorchidism, 35 with inguinal hernias, 12 with hypospadias, 31 with meatal stenosis, and 18 with other urologic abnormalities (hydrocele, abnormalities of the vas or testes, hydroureter, and hydronephrosis). It has been our practice to perform a careful urologic examination of any child with congenital rubella presenting with even minor genitourinary abnormalities, because of the probability of finding more significant occult disorders.

Endocrine Disturbances

One of the most provocative aspects of this longitudinal study has been the sporadic occurrence of diseases of low incidence, especially endocrine disturbances. Among our population we have identified six children with overt diabetes mellitus, one with Addison's disease, one with Graves' disease,[3] and one with hypothyroidism secondary to Hashimoto's thyroiditis.[4] A population of older persons with congenital rubella has been studied in Australia in which the incidence of diabetes mellitus was found to be 20 percent.[5] Statistically, then, there is an increased probability of development of some endocrine disorder in the child with congenital rubella.

In an attempt to explain this association, we had the opportunity to perform a biopsy of the goitrous thyroid gland of our six-year-old patient with Hashimoto's thyroiditis. The specimen was subjected to fluorescent antibody staining, with resultant demonstration of rubella virus antigen in the germinal centers of the lymphoid follicles. Our hypothesis is that this infection may have interfered with the normal development of immunologic maturity, specifically that related to cell-mediated immunity. The patient's immunologic defense mechanisms were later turned against the rubella virus antigens, which had taken up long-term residence in the thyroid. The result of this immunologic response was inflammatory disease causing the goiter and the hypothyroid state. It is interesting to speculate about the possible viral cause of juvenile diabetes mellitus as potentially following the same sequence, since it has been demonstrated that this disease may have its onset following viral infections, and histopathologic sections of the pancreas may show round-cell infiltration of the islets of Langerhans.

Additional immunologic studies are under way in our laboratory to extend these observations. For example, although lymphocytes from normal persons following natural rubella or rubella vaccine regularly respond to rubella antigen with blast formation and development of various lymphokines, our patient with Hashimoto's thyroiditis failed to respond in this fashion. On the other hand, B-cell function was intact as manifested by high levels of antibodies to various components of thyroid tissue and moderate levels of circulating rubella HI antibody, some of which was in the IgM fraction.

Studies such as these highlight the importance of continued monitoring of children with congenital rubella through adolescence for the appearance of any symptom suggestive of endocrine disorders.

Neurologic Manifestations

The invasion of rubella virus into the developing central nervous system during fetal development results in direct killing of some brain cells and an inflammatory process that results in ischemia and further inhibition of normal brain maturation. There is great variability in both the amount and the site of injury dealt to portions of the brain, with the result that the form of neurologic disorder and magnitude of impairment may vary considerably from one child to the next. Another variable that is a determinant of the neurologic manifestation of disease is the time of fetal development when rubella infection takes place. In general, the earlier in pregnancy that rubella is contracted, the greater the likelihood that some clinical manifestation of brain injury in the child will occur and the more severe the impairment will be.

One of the most striking aspects of our longitudinal study has been that of the continuously evolving character of the neurologic aspects of children with congenital rubella. There have been countless examples among our patients of the great plasticity of the central nervous system and its capacity for utilization of relatively undamaged portions of the brain. On the basis of our experience, we wish to urge extreme caution to pediatricians who are counseling families and agencies serving this group of children to avoid predictions of a hopeless prognosis. We do not advise institutionalization in residential facilities for the mentally retarded until a full range of rehabilitative services is brought to bear on each of the child's impairments.

In a study carried out in collaboration with Stella Chess of 74 children with mental retardation

secondary to congenital rubella, 21 children considered to be retarded by standard criteria at four to five years of age were no longer classified as retarded at eight to nine years of age.[7] Many children with spastic diplegia have had a successful outcome from orthopedic surgery, enabling them to enter special education programs previously closed to them because of difficulties in ambulation. Children seen during infancy with extreme irritability, tremulousness, and frank opisthotonic behavior reflect an ongoing meningoencephalitis secondary to rubella infection. Such children generally have considerable delay in all developmental milestones. With clearing of this encephalopathic process, which may take place between three and five years of age, there is often a gratifying spurt in development with improvement in ambulation and self-care skills. Language development usually lags behind because of the frequent association of severe or profound hearing loss and "central language impairment" with mental retardation.

By the time this group of children reached early adolescence, their neurologic picture seemed to have stabilized. Recently, however, available information has disturbed this relatively complacent attitude. For example, seizure disorders have been appearing in this population with greater frequency and seem to be present in a much higher percentage than would be expected in a random population. Whereas most surveys seem to indicate that seizure disorders affect approximately 0.5 percent of the general population, we have identified 11 children in our population of 517 with congenital rubella who have clinical and electroencephalographic evidence of a seizure disorder clinically significant enough to come to a physician's attention.

In this connection, our experience with psychoactive medication is worth mentioning. The phenothiazine group of drugs (e.g., chlorpromazine, thioridazine) are often the drugs of choice for management of severe hyperactivity and distractibility in these children. Caution is advised, however, because of their predilection for lowering the seizure threshold and unmasking latent convulsive disorders. Stimulant drugs (dextroamphetamine, methylphenidate) may be worth trying, but in our hands they have often increased the very anxiety and hyperactivity we have been trying to reduce. Similarly, barbiturates should be used with caution in the treatment of seizure disorders because of their frequent side effects (restlessness, irritability, and hyperactivity).

Recently, a new problem has surfaced regarding neurologic sequelae in children with congenital rubella. A group of children with congenital rubella has been described in California with a progressive, unrelenting degenerative disease of the central nervous system with onset around the time of puberty.[8] The disease, termed progressive rubella panencephalitis, is characterized by progressive ataxia, spasticity, behavioral and intellectual deterioration, and seizures, leading to death in two of eight patients. Results of laboratory studies include abnormal electroencephalograms and elevated levels of rubella HI antibody in serum and detectable rubella antibody in spinal fluid. Rubella virus has been isolated from the brain biopsy of one patient with the use of cocultivation techniques. Fortunately, this late-appearing complication of congenital rubella appears to be rare, and we have not observed it in any patient in the group we have been following. Nevertheless, with approximately 20,000 children with congenital rubella in the United States who represent the survivors of the 1964 epidemic now entering puberty, pediatricians should be especially vigilant for the appearance of the signs of this disorder.

Psychiatric Disorders

Serious behavior disorders in children with congenital rubella have been problems with which parents, educators, pediatricians, psychologists, and others have struggled for many years. Among the few publications in the medical literature that have dealt with this, probably the most comprehensive studies have been those of Dr. Chess.[7] The group studied 223 patients with congenital rubella. The patients were examined at approximately four and then again at eight years of age. The studies demonstrated a higher frequency of psychiatric disturbances, especially autism, than is seen in the population at large.[1] One important contribution of this group's work was the demonstration that a well-characterized biologic insult to the brain (in this case, congenital rubella) could be associated with a behavior disorder that had traditionally been viewed by many to be environmental in origin (autism).

During adolescence, children with congenital rubella have demonstrated their capacity to stir the same concerns among their parents as children without handicaps. Moodiness, rebelliousness, and other behavior considered so typical of children entering their teenage years are commonly seen in children with congenital rubella, but the ability of parents and other caretakers to cope with them is

made much more complex by the associated defects, such as deafness or mental retardation. These factors tend to magnify such behavior in children who may already have considerable difficulty in impulse control and aggressiveness.

We have become increasingly concerned with developing approaches that deal with the children's emerging sexuality. After years of treating their growing children like infants, the parents suddenly find—to their dismay—that their handicapped child is no longer a child in the biologic sense. Parents need considerable support as their children seek sexual gratification or try to cope with menstruation and possible pregnancy. Parents and caretaking agencies at this stage are in special need of counseling from sympathetic pediatricians and other health professionals, so that such issues as masturbation, contraception, pregnancy, abortion, and sterilization can be discussed in order to reconcile the rights of the child with those of the parents and the rest of society. These issues are obviously quite complex and deserve a broad appreciation by pediatricians, who are so frequently sought by parents for such counseling.

Conclusion

It is now apparent that the problems of diagnosis and management in children with congenital rubella may not be resolved in the first few years of life, but the character of the disorder continues to evolve the longer we continue our longitudinal follow-up of the survivors of the rubella epidemic of 1964. With the administration of more than 70 million doses of rubella vaccine since licensure in 1969, large-scale epidemics of rubella virtually have been eliminated from the United States. The thousands of children with congenital rubella in the United States continue to occupy our attention, both for the ongoing care they require and for what they continue to teach us about the pathogenesis and clinical manifestations of congenital infections.

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Psychological Assessment

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Although I am a developmental psychologist in private practice, I often have had occasion to question the value of the psychological assessments conducted for deaf-blind and other multihandicapped children. Since that tends to place me in the position of a heretic in my profession, I will try to explain my views in this paper and offer several suggestions for helping such assessments become more relevant and helpful.

Psychological assessments—and assessments by other disciplines—are like highway signposts that indicate for the traveler the direction and distance of a faraway goal. If the signposts used are correctly installed by a competent individual, then the traveler quickly learns that the information contained on the signposts is dependable and can be used to plan subsequent steps of the trip. If the signpost indicates that the next town is five miles to the northeast and it is actually 50 miles to the northwest, the traveler soon learns that the signposts should be ignored. He or she may be obliged to complete the rest of the trip in confusion or ignorance. My apprehension regarding the value of psychological assessments for deaf-blind children stems from my belief that many of the reports I have seen tend to be misleading, confusing, and in some cases, unfortunately, erroneous.

The people who make and install road signs can make mistakes. Psychologists make mistakes. The people who read road signs also have made mistakes in reading the signs, and often have presumed they mean one thing when actually they mean something vastly different. And again, sometimes the people who have requested information from psychological assessments have used the information in a way that diminishes the value and helpfulness of the report.

My objective in this paper, therefore, is to offer report users some guidance in understanding the benefits or liabilities that can accrue through the use of good assessment reports. I will identify some of the major components of a good report and suggest some of the things you can do to increase your chances of obtaining an assessment that is worth the time and money spent on it.

Definition of Terms

Before identifying the benefits of a good assessment, I feel the need to establish some consistency in the terms to be used throughout this paper. People often use such words as *assessment* and *evaluation* synonymously. Other words used interchangeably at times are *diagnosis* and *etiology*, *prescription* and *recommendation*, and *follow-up* and *follow-along*.

In this paper *assessment* refers to the identification of a handicapped child's problems in a way that has direct implications for the prescription of possible remediation strategies. The extent and nature of a "problem" is precisely defined as the difference between performances currently demonstrated by the child and the standards which the community has established for "acceptable" or "desirable" performances.

Evaluation is the process of monitoring the overall development of the child in all general areas of a particular program's curriculum, whether currently targeted for instruction or not. Two general forms of evaluation are practiced: (1) "broad-based evaluations," which serve as a sort of leveling device to ensure that all areas of the child's development are considered on a regular basis and that no element of the program is emphasized out of proportion to the others; and (2) "fine-grained evaluations," which are daily evaluations of the child's progress in specific instructional programs.

Diagnosis refers to the identification of a medical, psychological, or emotional problem that exists for a particular individual. The purpose of a diagnosis is to establish the causes, complications, and consequences of a particular condition. Radical behaviorists frequently cite that a diagnosis is unnecessary, irrelevant, and archaic; my position throughout this presentation will be that an accurate diagnosis will establish probable parameters within which specific behavioral or functional improvements can be expected.

Etiology is a part of diagnosis; it establishes the cause of the condition (e.g., infection, intoxication, genetic disorder, metabolic disorder). The etiology can be helpful from a developmental

perspective in that a measure of prediction or probability can be made regarding additional problems associated with problems already identified. A blind child with Norrie disease, a genetically transmitted condition, also carries a high probability of progressive hearing deterioration and mental retardation with increasing age. If the proper diagnosis was not made, those individuals with responsibility for providing effective intervention services for the child would probably not be sensitive to gradual difficulties experienced by the child in both hearing and learning situations. In one case with which I am personally familiar, a child who was exhibiting maladaptive behavior to compensate for a gradual physical deterioration was subjected to massive behavioral intervention to halt the child's regression. Once the diagnosis was made and confirmed, programming shifted instead to supporting that child in making the necessary adjustments as the deteriorative process continued. Similarly, knowing the starting point for certain physiological anomalies can suggest other areas of function that should be examined for difficulties. During the tenth week of gestation, the vestibular system and the palate of the fetus are developing. Current research is identifying a strong correlation between people with harelips or cleft palates and the presence of further problems in the vestibular system.

A *prescription* is a precise statement as to how a recommendation should be carried out. It specifies who should do what to or with a child, under what circumstances, in a particular setting. A prescription is also measurable either in terms of frequency, duration, or intensity and is the "treatment" that occurs between the pretreatment and post-treatment evaluative measures.

Recommendations tend to use general terms to describe what should be done to improve a child's performance over a broad area of function or to correct a medical problem that is compounding his or her behavioral difficulties.

Follow-up is a relatively brief contact with a family or agency to ascertain the status of services or needs. The emphasis is on the contact with the agency staff member or the parent. Typically, follow-ups are conducted infrequently with large intervals of time occurring between contacts.

Follow-along is a structured process that provides frequent, regular contacts with a family or service agency for the purpose of redefining the developmental status of the child and re-prescribing intervention strategies on the basis of the child's progress. Emphasis is placed on recurring contacts with the child.

With the above definitions in mind, the focus of this paper will be the pretreatment assessment that must be conducted to generate potentially helpful intervention prescriptions. Although the term *psychological assessment* seems clear and precise, many assessments fit under the broad umbrella of psychological assessment. Included are psychointellective assessments, which establish the pattern of intellectual functioning; developmental assessments, which describe the disparity of performance between the child and other children of the same chronological age; behavioral assessments, which analyze specific behaviors for their specific sequence; aptitude assessments, which attempt to predict success within certain interest or vocational situations; and personality assessments, which examine the socioemotional strengths and shortcomings of individuals.

Although psychological services may focus on any one of the above assessments, a comprehensive assessment of the young deaf-blind child, especially the child who functions basically at an immature developmental level, requires assessments that combine psychointellective, developmental, and behavioral considerations.

If the psychological assessment of the deaf-blind child has considered the proper array of psychointellective, developmental, and behavioral factors, then we should be able to expect that the report which follows will establish and sustain a sense of optimism regarding the child's development to date and his or her potential for continuing development. In addition, the assessment will provide a strong foundation for building further skills by identifying the learning styles and channels that offer the greatest efficiency in the instructional environment. At the same time, the report should reduce the time that might be wasted by providing training in skills which already exist in the child's repertoire. By confirming the observations of teachers and parents regarding the child's performance in his or her natural ecology, the assessment report can identify those areas of functioning that are in most need of intervention and those channels that are least efficient for instruction.

The psychological assessment may be incomplete either because of a narrow focus of examination or too little time taken in interaction with the child. The assessment report may be inaccurate because of uncontrolled biases on the part of the examiner or the individuals who served as informants for the assessment. The time taken in completing the evaluation may be so extended that many of the problems which first brought the child

to the examiner have now diminished as a result of ongoing interventions or maturation. If any of these statements is true, then a number of very undesirable effects can be listed:

1. Future training activities may be misdirected using inappropriately targeted behaviors or poorly chosen methodologies.
2. The chances for successful intervention may be diminished leading to pejorative labels being applied unnecessarily.
3. Unfortunate pessimism may be fostered regarding the potential for further learning.
4. The child may be unnecessarily subjected to failure experiences detrimental to development.
5. Most tragically, valuable time, that might have been used to significantly improve the child's capacity to thrive and function more independently in a more accepting environment, may have been wasted.

To maximize the benefits that arise from psychological assessments, intervention staffs should be able to determine the acceptability of subsequent reports. Although it is not possible to establish rigid guidelines for judging a report's accuracy or competency, the report's format and content can indicate whether or not the examiner has attempted a comprehensive, sensitive, and cautious consideration of the deaf-blind child.

Report Format

A psychological assessment for a deaf-blind child might have the following format:

1. Identifying Information

Identifying information should include the child's legal name and the name preferred by the child or most frequently used. The name and address of the child's parents or legal guardian, the name of the child's current teacher (if any), and the child's placement in school should be listed. The child's birthdate and chronological age in years and months are helpful. Identifying information for the report must also include the date or dates of the examination and the examiner's name.

2. Referral Information

Referral information should be explicitly included in the assessment report and is perhaps the most important part of the report. The referral information permits the report's reader to judge whether or not the assessment strategies employed, the results obtained, and the subsequent interpretations were appropriate and relevant to the need. The psychologist should receive a concise but definitive statement of the child's problems, the referrer's view of them, and the questions that the referrer poses for the assessment. Any psychological assessment should be directed toward a specific question or effort.

Many requests for psychological assessment are explained with "The policy manual requires that every child have a psychological evaluation." I have never accepted a referral for psychological services on that basis.

Neither is the need to complete a file an adequate reason for an assessment. The assessment should always strive to answer questions posed by the referrer so that improved care, treatment, or training is facilitated. Such questions may vary from "John is scheduled for school placement this coming September; but he has a number of behavioral problems such as hyperactivity, stereotypic patterns, and high distractibility which will pose problems for a successful school adjustment. What can be done within his current preschool setting to improve the prerequisite skills for a successful public school placement?" to "What are the environmental and instructional factors which will tend to elicit and sustain optimal independence of Marsha in both school and foster home placements?" Once you know what the question is, it will be an easier task to determine whether the report successfully answers the question.

3. Background Information

Background information included in the assessment report should always be relevant to the referral question or questions posed. It is unnecessary to repeat the birth or developmental history of the child unless it offers a clearer understanding of how or why the child's current difficulties developed. Similarly, the results of previous assessments (who, what, when, where, why, and how) may be helpful if they offer additional information about the behaviors that are currently of concern.

Because the examiner will be describing how the child performed under varying task samples, the background information should specify those biomedical factors that would either facilitate or hinder successful performance of the tasks used in assessing the referral question. These factors might include the child's current medical or physical status (Was the child well on the dates the examination was conducted?), any sensory or

motor aids regularly used (Was the child wearing glasses when he or she was asked to do certain tasks visually presented?), chronic allergies diagnosed (Was the child always outside on the lawn when certain behavioral problems were observed?), or recent factors affecting the child's emotions or motivation (Was he or she punished immediately prior to the examination because of some infraction of a rule in the home or school setting?).

Also, with the widespread use of psychopharmacological agents, the psychologist needs to know which medications are being given, the prescribed dosages, and the intervals at which they are being given. The psychologist also needs to know how long the child has been on a particular drug regimen and what the possible side effects of the drug might be. In institutional or hospital settings, the psychologist should learn to check thoroughly those medical, surgical, or other procedures the child may have recently undergone or may be scheduled to undergo.

Information regarding the language that the child uses or is exposed to in the home and school and the degree to which he or she understands it is crucial to the validity of the assessment. This is especially true of the deaf-blind or multihandicapped child, with whom manual forms of communication may be used for either receptive or expressive purposes.

The final question to be addressed in the background section includes the distribution of the psychologist's report. The psychologist should formulate his or her findings, recommendations, or prescriptions in language that is meaningful to the reader.

4. Other Testing Conducted

Any additional testing conducted should be described. If standardized tests are used and formal scores are obtained and reported, they should be included. This information is frequently more helpful to other psychologists or psychometricians; future examiners can review the techniques employed and the results obtained and determine whether or not specific procedures should or should not be repeated. Clues to the psychologist's sensitivity in interpreting behavior often can be found here. If the examiner is careless in citing that "the test says . . ." or "the test shows . . .," it is possible that additional findings elsewhere reported may be cited in a fashion that suggests far more factual foundation than may be deserved. Tests do not say anything. The examiner should be alert to report that "test scores suggest . . ." or "one interpretation of the observed behavior may be that . . . ."

5. Clinical Observations and Interpretations

The clinical observations and interpretations section should include a description of the behaviors or performances the psychologist has chosen to interpret as significantly related to the referral question. In this section also, the reader should be sensitive to pedantic renderings of behaviors observed. Although this section also is probably of chief value to future psychological examiners, teachers and parents should review this section carefully. Have the psychologist's observations of the child's skills or deficits differed from the teacher's or parent's observations, or do they match closely? If the same behaviors are observed, does the psychologist offer explanations or interpretations of the behaviors that are either consistent with or markedly different from the interpretations of teachers or parents? This section partially establishes the need for sufficient post-report interpretations in face-to-face meetings with the child's significant adults. Parents, teachers, and examiners should always have access to each other to discuss confusing or disparate interpretations or observations or simply to confirm that all have observed essentially the same behaviors, have made the same interpretations, and therefore can have confidence to proceed on logically derived intervention procedures.

6. Summary of Findings

The summary of findings should be concise yet sufficiently comprehensive to "put the child back together" after the various tests have measured the child's visual memory, receptive language, toileting independence, auditory discrimination, and so forth. This section should be of prime interest to both teachers, support personnel, and administrators because here they should find a composite profile of the child's needs, strengths, and unique personality. The information contained herein offers the most immediate rationale for the recommendations which are to be made and the prescriptions which are suggested to implement the recommendations.

7. Psychologist's Recommendations

The psychologist's recommendations should be clearly appended toward the end of the report. Complaints frequently are expressed about the brevity of a report, and short reports are interpreted as indicating an inadequate report. The total

length of the report and the extensiveness of recommendations should directly be influenced by the referral question. Some questions will require much more extensive assessment and more lengthy reporting than others. Some psychologists like myself are criticized for writing reports that are too long. My reports average eight to ten pages in total length with the last three or four pages detailing the recommendations that have resulted from the assessment. Perhaps it is a rationalization to excuse my wordiness, but I feel that if my reports are to be helpful, I must be able to report fully and completely and that if the teacher or other intervention staff member is to fully understand "where I am coming from" in my recommendations and prescriptions, they should be willing to read a complete report. Seldom have I heard a teacher complain about the length of a report after he or she worked with a previous report.

8. Prescriptive Plans

The prescriptive plans following the recommendations should never come as a surprise to the child's teacher. Prescriptions should be specific to a setting, whether in a home or school. Prescriptions must always reflect due consideration for environmental factors. Educational prescriptions are written with the skills and shortcomings of specific teachers in mind. Prescriptions should be rewritten if the composition of the student group changes radically. Therefore, the prescriptions reflected in a psychological report should always be developed in close coordination with the child's teacher. The final prescriptions described in a psychological report represent the culmination of much planning, discussion, and negotiation by the examiner and the teacher. I am always apprehensive about the report that includes "cookbook" recipes for activities lifted out of the plethora of publications that exist today. (I have a strong personal bias that a good teacher is good with a cardboard box and a ball of string and that poor teachers stay poor teachers regardless of the library of programming manuals they may possess.)

I generally include an extensive set of recommendations with my reports of assessment. Within these recommendations, I try to include some general flavor of the prescriptive approaches that I would consider as relevant. I prefer to wait and not develop prescriptions until I get the go-ahead from whoever is engaging me and until I am convinced that we understand and accept whatever limitations of time, approach, and the like may be necessary for further work.

Recommendations

Now that I have defined relevant terms and described what I feel is an appropriate report format, I would like to use the remaining space to offer some recommendations that I feel may help you improve or consolidate the psychological assessment services you receive for deaf-blind children.

Expect the psychologist to examine the child in settings that are familiar and comfortable to the child.

When assessing the deaf-blind or multihandicapped child, the psychologist is obliged to do so in an environment that provides the greatest chances for the child to demonstrate his or her full capacity or potential. In some cases an office or clinic setting may be sufficient. In the greatest number of cases, however, when the client is a lower-functioning sensory-impaired or multihandicapped child, the psychologist should conduct the evaluation in the child's natural setting (i.e., the home or classroom).

The problems that result in a referral for assessment typically arise from behaviors in the home or classroom setting. By conducting the evaluation in such a setting, the psychologist will be able to (1) understand the topography of the problems more completely; (2) identify the relevant variables in the actual environment that stimulate, sustain, or reinforce the problem behavior; and (3) discern possible options in the manipulation or alteration of the variables that might result in improved performances by the child in that setting.

In the classroom the teacher can work closely with the psychologist to identify the specific behaviorally referenced concerns that can be measured in terms of their frequency of occurrence, their intensity, or their duration. The teacher's observation of the child and the resulting data (baselines) generally tend to be more relevant information than the information that is available from direct manipulation by the psychologist.

In the home the adaptive demands upon the child are more pronounced. The five-year-old child is expected to be toilet-trained, to be able to feed himself efficiently and neatly with a minimum of assistance, to be able to communicate basic needs and wants in a socially acceptable fashion, and to be able to interact with peers and adults in a socialized manner. When the child does not, or will not, comply with the adaptive expectations of the parents or family members, then the most signifi-

cant data are those that result from family interactions. This is not to exclude or ignore the fact that at times the psychologist can, in a clinic setting, gain a perspective of the child that is not available in the home setting. The deaf-blind child or the child with multiple physical disabilities is often more preoccupied with the novelty—or anxiety—of a new setting; and the psychologist is left only with the opportunity to observe and interpret behaviors that actually are representative of the child's attempts to make contact with, understand, and cope with the new environment. For this reason, the diagnostic classroom, the structured residential setting, the natural home, and the child's classroom frequently can be the optimal sites for discovering the child's latent capacities as well as latent—and manifest—anxieties and fears.

Expect the psychologist to measure the time spent with the child in terms of hours rather than minutes.

To obtain a representative sampling of the child's performances, the psychologist should see the child over several days, during both morning and afternoon periods.

Expect the psychologist to provide more information than simple quantitative scores.

The teacher or the parent is concerned with improving the child's behaviors, not the scores. The psychologist must therefore respond to the behavioral dimensions of the child's performance rather than to quantitative measures. If the behavior improves, the scores should increase.

Prior to the assessment, discuss with the consulting psychologist the approach to be used.

With deaf-blind and multihandicapped children, especially those with characteristic problems of disruptive or maladaptive behavior, the teacher should ensure that the assessment approach to be used by the psychologist does not result in a narrow, disproportionate profile. The teacher not only has a right but an obligation to understand fully how the psychologist plans to undertake the examination. The teacher should inquire about the proposed test strategies, what information they should provide, and so forth. The teacher who is an acutely discriminating shopper in a grocery or department store frequently appears to be content to relinquish both responsibility and control of a child's instructional program into the "magical" hands of the psychologist.

Be prepared to use the psychological report as a starting point, not as a closing point.

If you are going to use the report of assessment as a working tool, then there is incentive for you to maintain a close coordination with the examiner throughout the assessment process. The psychologist is constructing the tool you will use; make sure it is the right one for you. The potential value of any psychological or behavioral assessment is a function of how fully the educational specialist is able to design and implement program strategies that reflect the essence of the report's recommendations. Without implementation, the whole process of the assessment becomes meaningless, futile, and wasted.

The recommendations may not work immediately, and they may not work at all. Rather than filing the report in the back of the file cabinet with a snort of disdain for those "ivory-tower idealists," march over to the psychologist's office or call him or her on the phone and say, "Look here! I tried this recommendation and it didn't work; so I tried it with such-and-such variation and it still didn't work! What now?"

Give the psychologist feedback regarding the effectiveness of the methods used. Work with the psychologist to determine how the recommendations can be varied to render them more feasible. Keep the dialogue going. Insist on the "follow-along" process; do not acquiesce to simple "follow-up" procedures. Remember that the quality of the relationship between the educator and the psychologist is the key determinant to the effectiveness of the intervention. The sharpest psychologist in the world and the sharpest teacher in the world may be completely ineffective if they cannot—or will not—communicate easily and understandably with each other.

Avoid the cultist.

As in any field of endeavor, schools of thought or approach develop and attract numerous followers. The followers of a particular school or cult often are more committed to using a particular epistemology or approach than they are to testing its validity with a wide range of individuals; for example, the arch-behavior modifier or the arch-sensory integrator. Look for the competent middle-of-the-roader who has examined in depth a range of approaches and who has tried to distill from each the best methods that can be compatibly applied. For the lower-functioning deaf-blind child, I feel strongly that a psychologist with

strong behavioral training and sufficient grounding in physiological areas to work cooperatively and synergistically with occupational and physical therapists can be an excellent resource to a teaching program.

Keep trying to find better ways of accomplishing the same end.

The approaches I have described relate most appropriately to the lower-functioning child who has been considered "untestable" or inappropriate for standardized testing methodologies. If you work with the higher-functioning child, then I hope that there has been something here that may assist you in your daily work. I would certainly recommend to you two publications of the Southwestern Region Deaf-Blind Center: *Rubella Deaf-Blind Child: Implications of Psychological Assessment* and *Basic Assessment and Intervention Techniques for Deaf-Blind and Multihandicapped Children.*

Functional Visual Assessment of Deaf-Blind Children

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A functional visual assessment is more than just an attempt to determine a person's visual acuity. Such an assessment involves determining how well light and form are received in the eye and sent to the brain (sensation), how efficiently a person aims and focuses the eyes as well as coordinates vision with other parts of the body (motor), and how well the visual signal is interpreted and utilized by the brain (visual perception).

Functional visual assessments generally include sensory, motor, and perceptual aspects of vision. To better understand the sensory area, one must understand the problems that may occur in this area with deaf-blind children. Many of the deaf-blind child's problems are the result of rubella. Some of the sensory area problems that result from rubella are congenital cataracts, rubella retinopathy, and glaucoma.

Sensory Area Problems

Cataracts can be defined as any opacity of the crystalline lens of the eye. The crystalline lens is the only structure of the eye in which cataracts can form. The crystalline lens is situated directly behind the pupil of the eye and, in the normal person, it has the purpose of allowing one to change his or her focus from distance to nearpoint. In many cases the cataract is severe enough that a surgical procedure must be used to remove the opacity. The surgery should be performed soon after birth because the retina will not develop normally if it is not stimulated at an early age. Another reason for early surgery is that the child may miss some critical vision learning skills if cataracts are present; and if he or she is left blind for a longer period of time, it will be difficult for the child to catch up with his or her visual skills. Modern surgical techniques help make the surgery easier on the child, and the child can return to school in a matter of days after surgery.

After the cataract surgery, the child must wear rather thick glasses or contact lenses. The reason for this is that when all or part of the crystalline lens is removed, the eye loses a considerable amount of refractory power and also loses the ability to change its shape to allow for a near focus. Bifocals usually are incorporated into post-cataract glasses to allow the child to focus at nearpoint. In many cases the child will have a difficult time adjusting to the glasses. This may be because they are heavy or uncomfortable. The child also may have adjusted to and been happy with his or her old environment of a sightless or near-sightless world. One characteristic of a deaf-blind child is that he or she does not like to change his or her routine. In many cases a teacher may need to assist a child in adjusting to a seeing environment by helping the child learn to wear glasses. The teacher may have to use some type of reward to get the child to wear glasses. The child should wear the glasses at all times, not only in school or in reading situations. Visual skills can be learned while eating, while playing, and while exploring the environment.

Rubella retinopathy is experienced by many deaf-blind children and is a result of parts of the retina being infected with the rubella virus. This results in blind spots in the child's visual field. There is no known way to get the child to revive these blind spots, but the teacher should understand where they are so that he or she will not introduce educational tasks in an area in which the child cannot perform. The teacher should offer the child an object and observe where the object is held. Does the child hold it in front of both eyes, in front of the right eye, in front of the left eye, or at an angle. By careful observation, the teacher can learn where the child is most efficient. This information then can be used in the child's educational program.

Glaucoma is a result of increased intraocular tension. This may be the result of too much intraocular fluid being manufactured or inadequate drainage of the fluid from the globe of the eye. There are two major types of glaucoma. One is the chronic type with few subjective symptoms such as

pain; the other is acute type with sudden onset of extreme pain. Deaf-blind children should be examined on a regular basis for advanced glaucoma as a preventive measure.

The motor area of the professional visual examination should include an assessment of the child's ocular motor balance (the efficiency with which the child can aim the eyes). When both eyes are not absolutely straight, this condition is called strabismus. There are many types of strabismus, but they have certain things in common. If the child's eyes have not been corrected so that they are parallel by the time he or she is seven years of age, the child has a much poorer chance of achieving binocular vision. When a person has strabismus, he or she usually suppresses the eye that turns to keep from seeing double; this condition is called monocular vision. That is, the two eyes are not used together as a team. Although surgery is a very common practice for relieving strabismus, some cases may be relieved by the use of glasses or visual exercises.

Nystagmus, a rapid involuntary movement of the eye, is also very common with deaf-blind children, and there is no known effective treatment for it. Nystagmus always results in lower visual acuity. Although there is no known relief from the condition, many children with nystagmus respond by improved visual acuity as a result of magnification with low vision aids. Low vision aids may be effective in other areas besides nystagmus, and it is recommended that higher-functioning children be evaluated for their potential use of these aids. Lower-functioning children do not adapt well to such aids.

In many cases visual perception is not included in the professional eye examination. The psychologist or educational evaluator often supplies the information in this area. The child's teacher should also be involved in assessment of the child's visual perception. A valuable aid for assisting the teacher to understand visual perception and to conduct a visual assessment is the *Vision Guide for Teachers of Deaf-Blind Children* by Marvin Efron and Beth Reilly DuBoff (printed by the North Carolina Department of Public Instruction, Raleigh, North Carolina).

The Assessment Report

A professional visual examination is only valuable when it results in a meaningful report to the teacher. Following is a guide that would assist professional examiners in making a report. The teacher needs answers to the following questions:

1. What is the cause of the visual impairment?
2. Is any special treatment required? If so, what is the general nature of the treatment?
3. Is the visual impairment likely to get worse, better, or stay the same?
4. Should the teacher be alert to any particular symptoms (such as eye rubbing) that would signal the need for professional attention?
5. What restrictions should be placed on the child's activities?
6. Should the child wear glasses or contact lenses? If so, under what circumstances?
7. Was the examiner able to determine an accurate visual acuity measure? If so, what was the visual acuity of the child?
8. If a visual acuity measure was not possible, what is the examiner's opinion regarding what the child sees?
9. Are the child's focusing ability and eye muscle balance adequate? If not, please describe.
10. Was the examiner able to determine the field of vision? If so, were there areas of no vision in the field? Where?
11. Was the child able to follow visually a moving object? Were there directions in which the child could not track moving objects? Which directions?
12. Will the child work better with large or with small objects and pictures? At what distances?
13. What lighting conditions would be optimal for the child's visual functioning?
14. What are the examiner's specific recommendations concerning this child's use of vision in learning situations?
15. When should this child be examined again?

Two important reasons exist for conducting visual assessments of deaf-blind children. These reasons are (1) to establish justification for placing the child in a deaf-blind program; and (2) to assist the teacher in planning and conducting the educational program for the child.

The visual assessment should include not only an examination of the child's eyes for eye disease, visual acuity, and optical pressure but also a functional evaluation of the child's sensory, motor, and perceptual visual skills. The ophthalmological or optometric examination should be supplemented by a continuous teacher assessment of the child's vision, and the teacher should be a valuable resource for the professional examiner. Many

deaf-blind children adjust poorly to a new environment and to an unknown person. The child may give invalid responses in a situation such as this. However, when the teacher is present during the professional examination, the child is more at ease and the examiner obtains information on the reliability of the child's responses.

The examiner should allow sufficient time to build rapport with the child and to discover techniques that will best work with the subject. Some children perform best when the examination is conducted on the floor; others respond better in a chair. The examiner should adjust himself or herself to the needs of the child, because it is much more difficult for many deaf-blind children to make the adjustment to the examiner's usual procedures for nonhandicapped children. Many deaf-blind children have difficulties in responding to subjective tests such as visual acuity tests and visual field tests. The teacher can assist the examiner by conducting these tests in the classroom repeatedly over a period of time to give validity and reliability to the results.

The Role of the Teacher

The teacher's role in visual assessment goes beyond just assisting the professional examiner in conducting the testing, but should also include actually securing supplementary information in the classroom in a cooperative venture with the professional examiner. For example, the teacher can acquaint the child with the targets to be used in visual acuity testing and make a game so that the child learns to match the test items. The teacher can then, as part of the educational program, use these test items at a gradually increasing distance from the child until the child no longer can respond. This technique can yield valuable information that can be used to determine the child's visual acuity. Visual field information can be obtained by introducing objects from different positions in the child's visual field and observing his or her responses. These are just a few examples of how a teacher can assist in the visual assessment. Many professional examiners do not have a background in the functional skills of a deaf-blind child, and it is desirable for the teacher to conduct supplemental functional vision tests to complete the visual assessment of the deaf-blind child. This assessment should be done continually, and it can be incorporated into part of the educational program.

In conclusion, the functional visual assessment should be an interdisciplinary team effort with the professional examiner, teacher, psychologist, professional evaluator, and parent all contributing information.

Professional Burn-Out: How to Avoid It

Presented by LeRoy Spaniol, President
Human Services Associates, Lexington, Mass.

I want to start my presentation with an exercise. Think of three things you did for yourself during the past week. Take a few minutes and write them down if you wish. Think of three wishes for yourself during the coming week. Again, take a few minutes and write them down if you wish. Now I would like you to find someone nearby whom you know least. Introduce yourself and describe your responses to the two questions I have asked you. If you need to move around to find someone you know least I would encourage you to do so.

Did the exercise produce any surprises for you? Did you find it easier to look back or look ahead? My guess is you were able to recall and look forward to ways in which you are already taking good care of yourself. Think back to your wishes. What can you do to make them come true? Remembering, doing, and planning good things for yourself are ways of taking good care of yourself. When you are taking good care of yourself, you are in a better position to take good care of others—and less likely to burn yourself out.

My interest in burn-out began with some of my own work experiences, my observations of other professionals, and my teaching of clinical practicum courses at the master's and doctoral levels. Approximately a year ago I developed some course materials on how professionals could take better care of themselves while they were taking good care of others. The ideas and experientially based exercises I presented were very well received by my students. Soon I found myself receiving invitations to give presentations and conduct workshops for a wide range of audiences including psychiatrists, social workers, counselors, social service administrators, business executives, allied health professionals, secretaries, and homemakers. What I want to present here is a brief summary of the development of my own thinking over the past year and some recommendations for how those who work in the helping professions can avoid burn-out.

Burn-out can be defined as "wearing yourself out doing what you have to do," "the inability to cope adequately with the stresses of our work or personal lives," "what can happen to professionals who have to work continuously with people who have serious personal problems or disabilities," or "what can happen to professionals who work in an environment which does not actively encourage participative problem solving." Thus, burn-out can result from personal as well as organizational factors.

Why is burn-out important? In the first place, it is personally and physically harmful to ourselves. For instance, the chances for an accident increase with burn-out. Furthermore, it correlates with other indices of stress, such as alcoholism, mental illness, marital conflict, and suicide.

Burn-out is also potentially harmful to others in our personal or work environment. We may become more critical of those around us. We may see less hope for those we are helping. We actually may physically harm others.

Burn-out reduces the amount of personal energy available for constructive problem solving, creative and innovative work, excitement, caring, loving, playing, and enjoying. We each have a fixed amount of energy. If our energy is being used up in burn-out, we are shortchanging ourselves.

Burn-out seems to have three levels or degrees. They are as follows:

First degree. The burn-out at this level is mild. The symptoms are only occasional and they are short-lived.

Second degree. The burn-out at this level is moderate. The person experiences regular bouts that last longer and are difficult to escape.

Third degree. This level often involves tissue damage; i.e., ulcers, migraine headaches, and the like. Psychological and spiritual questioning may occur. The person begins to question the value of his or her work. He or she may question the meaning of his or her own life. The symptoms may be frequent, continuous, and difficult to eliminate.

I would like to say some things about the kinds of signs and symptoms I have experienced myself or have observed in others. No one individual has all the signs or experiences them in the same way or at the same level.

First, I want to ask you the following questions:

1. What are three of your signs or symptoms of burn-out?

2. What happens to you when you begin to burn yourself out?
3. What do you do to burn yourself out?
4. What do you do that leads to your signs or symptoms?
5. What are some of the ways in which your job setting increases your chances for burning out?

Take a few minutes to share your responses with another person. Did you come up with any surprises about yourself or your job setting? How did it feel to share what was happening to you in your job setting? People who regularly share their feelings about their clients and their work with another person show fewer signs of burn-out.

For purposes of this presentation, I would like to focus on the personal signs and symptoms and how we get into them. They include the following:

Fatigue. This may be experienced as exhaustion, sleeping more than usual, increased sick leave, absenteeism, and lack of energy on the job.

Worry. You may find yourself taking clients home with you—in your head. Worry can lead to depression or an inability to make decisions.

Physical symptoms. You may develop ulcers, migraine headaches, backaches, tension, or stress.

Anger/resentment. You may be focusing your anger or resentment on clients, fellow employees, or supervisors.

Accident proneness. The personal risks of an accident go up with burn-out.

Cynicism/griping. You may have lost the enthusiasm you once had for your work. Griping is a way of dealing with problems you cannot or will not face directly.

Over-involvement. This is doing more than other reasonable people would do in the same situation. The opposite is distancing: labeling, going by the book, or becoming a bureaucrat.

Ignoring your own wants and needs. You may not be taking good care of yourself or getting what you want.

Heavy critical parent (in your head). We hassle ourselves when we are under stress or when we make mistakes. We are very critical of our own bungling.

Not communicating to another significant person how you feel about your work. Griping is not communicating if it does not involve owning one's own feelings and responsibility.

What can we do about burn-out? How can we deal with the personal issues and problems we have raised today?

Be aware. Awareness involves admitting and personalizing what we are doing to ourselves. Awareness by itself can frequently lead to change. Awareness can also be scary. Sharing your awareness with another person can help to reduce the fright and can bring burn-out into the open where it can be dealt with. Awareness can also help you to identify early signs and symptoms as "cues" for potential problems. Be aware of and in charge of your own symptoms.

Communicate with a peer professional. Choose someone with whom you can check out your personal concerns about your work. Make it a deliberate choice, and ask the person to be available periodically to discuss personal issues. Professionals tend to keep strong feelings to themselves. They feel their personal reactions are unique and possibly bad. Furthermore, they are often not trained to deal with their own strong feelings nor those of their clients. Putting a lid on natural emotional and physiological reactions is not healthy. The isolation of work can be devastating.

Make personal contacts. Think of four people you can contact either by phone or in person each day. Mark their names down. Make a contract with yourself to get in touch with each of them for one or two minutes each day. Share a feeling or a thought with them—and keep it brief. Making personal contact is a way of stroking yourself and others; it reduces the likelihood that you will burn yourself out.

Give yourself plenty of permission to take good care of yourself. Give yourself some personal time and space—for whatever you want to do. What have you done for yourself lately? Learning how to give and take strokes is another way of taking good care of yourself. A stroke is defined as a "unit of recognition." There are positive and negative strokes.

I have a series of questions that should help you learn to take and give strokes. What is one thing you like to do? What is one thing you do well? What is one thing you could do better? What is one thing you like about your partner for this session? Find your partner and share your responses to these four questions. Getting and giving positive strokes will help you to avoid burn-out.

Practice helping under good supervision. If you are experiencing burn-out while helping others, practice helping appropriately under good supervision. If what you need is not available from your own supervisor, get it someplace else. Purchase it in

private practice, if necessary, or from another supervisor whom you respect.

Have a personal work contract. Human service workers often get caught up in crisis management. They feel overburdened by the amount of work that needs to be done. Be aware of your own physical and psychological limitations. How do you currently plan and organize your time in a normal week? What times of the day do you feel most comfortable doing what kinds of tasks? How can you build in functions that are professionally satisfying to you? Your work plan should include what needs to be done plus what you enjoy doing.

Plan to work with someone you enjoy being with. This will decrease the likelihood that your personal resources will be depleted. You will also be more likely to get positive strokes and feedback. Also, you will have someone with whom to solve problems. In addition, plan to be with significant others socially on a regular basis. When you are actively maintaining your own stroke economy, you are less likely to burn out.

Learn to relax. Systematic relaxation can be very "energizing." It has many of the effects of the more formal approaches to meditation.

Exercise regularly. You become less fatigued by your work when you are exercising regularly. Jogging, playing tennis, dancing, or whatever is enjoyable for you can help you to prevent burnout.

Educational Assessment

Presented by Patricia Busset, Teacher
Assessment Center for the Deaf-Blind,
California School for the Blind,
Berkeley, California

The assessment of each deaf-blind child admitted to the California School for the Blind includes evaluation in a number of areas. These areas usually are as follows:

1. Educational
2. Activities of daily living
3. Audiological
4. Ophthalmological
5. Psychological
6. Occupational therapy
7. Prevocational
8. Neurological

Most of the evaluations are done in the classroom setting; however, the student visits the audiologist, ophthalmologist, and the prevocational consultant or pediatric neurologist at suitable times during the evaluation period.

Because each child manifests a distinct set of problems, the evaluation process must be flexible. Some of the factors which can cause variations within the evaluation procedure are the following:

1. Purpose(s) for which the assessment was requested
2. Physical conditions and requirements of the child
3. Functional level of the child
4. Requirements of the general school schedule

Consideration of these factors helps ensure that each child is regarded as an individual; and specific questions of the parents, teachers, and other concerned persons can be dealt with.

Educational Assessment

The areas covered in the educational portion of the assessment are as follows:

1. Sensory Skills
   a. Vision
   b. Hearing
   c. Touch
   d. Smell
   e. Taste
2. Physical Skills
   a. Gross motor
   b. Fine motor
   c. Self care
3. Emotional Development
   a. General behavior
   b. Awareness of self
   c. Relationships with others
4. Early Cognitive Development
   a. Style of learning
   b. Understanding of objects
   c. Awareness of basic object attributes
   d. Awareness of time and space
   e. Language development
5. Academic Skills
   a. Reading readiness
   b. Writing skills
   c. Number skills

The preceding outline is divided into five principal areas of development. Each of the peripheral senses, motor skills, and outward actions and reactions of the child are examined in a variety of situations.

Sensory Skills

Under "Sensory Skills," the first sense covered is vision. The examiner notes the type of low vision aids, if any, that the child uses. These, for all practical purposes, are eye glasses and are listed as to type, condition, and fit. The examiner notes whether the child wears them all day, whether he or she pulls them off from time to time or on a regular basis, or whether he or she refuses to wear them at all.

Distance Vision

For the lower level child, the examiner notes the distances at which objects of varying sizes are detected, with attempted or actual retrieval. Types of background also are noted. For higher level children, the Schering chart is used. One side of this chart has the letter "E" in different positions; the other side has four simple black forms representing a flower, house, butterfly, and apple. The child can hold out three middle fingers to indicate the position of the "E" or hold up a card to indicate which picture form he or she has seen.

Near Vision

Within a child's arm's length, the teacher notes the distance at which an object is closely inspected. Does the child lose interest consistently at a specific distance? In matching or reading print of different sizes, the preferred distance for the task is noted. The child also may be asked which size he or she prefers.

Eye Preference

The examiner should observe whether or not the child uses one eye more than the other.

Basic Mechanics of the Eye

The basic mechanics of the eye also should be noted. They are the following:

Pupillary reaction. Is there a pupillary reaction in both eyes?

Muscle imbalance. Can any muscle imbalance be detected?

Blink reflex. Is a blink reflex present when objects are brought close to the child's face; if so, at what distance from the face?

Visual field. Does the child show a preference involving visual fields? Does the child attend to a light flashed or an interesting toy when it is presented from various points?

Peripheral vision. While sitting behind the child, the examiner brings the light slowly into the right and then the left visual field. The child should notice the light when it is in line with the lateral portion of the eye.

Depth perception. Does the child reach over or under when grasping for objects placed at all levels and from all directions? The ability to negotiate steps and to gauge depths in various eye-hand tasks is observed and noted.

Tracking. Can the child localize and track when a light source or a small toy is held within his or her range of vision? The light or object should be moved slowly from left and right, up and down, and in oblique angles. Does the child track by eye movements only or with head turning and/or trunk rotating?

Shifting attention. When two interesting objects are held before the child, can the child shift his or her gaze between them; i.e., from one to the other and back again?

Scanning. Can the child scan three objects placed in front of him or her?

Visual attentiveness. The length of time the child attends to visual stimulation is noted. Are any preferences shown?

Inappropriate behaviors involving vision. Any inappropriate behaviors involving vision (such as eye-poking, flicking, and the like) are noted.

The visual workup includes a visit to the school ophthalmologist, who reads the most recent report on the child, checks the child's eye health, and, whenever possible, tests for acuity. If the child proves minimally cooperative, a refraction is also performed the week following the initial check. When appropriate, suggestions are made for courses of treatment.

Similar types of evaluations are done in the other sensory areas of hearing, touch, smell, and taste.

Emotional Development

The examiner looks for incidents that are descriptive of the child's personality. The child's actions and reactions are defined. The child's responses during the four-week evaluation period are noted in accordance with the following outline:

Initial Adjustment

What are the child's actions in the new setting? What emotions are expressed?

General Temperament

After the child has adjusted, is there a prevailing reaction to people and tasks?

Emotions Expressed

Is the child an emotive person? What basic feelings are expressed? Does the child show pleasure, displeasure, anger, or fear? In what way does the child express these feelings? In what circumstances are they shown? Do the feelings or responses appear appropriate to the child's level of understanding?

Frustration

Are there any tasks or restrictions that the child finds frustrating; e.g., a task that expects the child to push himself or herself cognitively? Is the amount of work more than the child usually handles at one time? What are the resulting behaviors?

Self-Stimulatory Behaviors

The examiner notes any self-stimulatory behaviors that the child exhibits. Are the actions under the child's control? Can they be avoided or averted easily, with moderate difficulty, with great difficulty, or not at all?

Free Time

How does the child spend his or her time when not directly involved with the staff or with a specific task?

The psychologist also works with the child in the classroom. Prime importance is placed upon observation and evaluation of the child's performance when he or she interacts with objects and people. Psychological tests are administered, whenever possible, with emphasis more upon qualitative performance than upon quantitative scores.

Style of Learning

Some of the topics covered under "Early Cognitive Development" are the following:

Sensory Channels

In this section we begin by looking at which sensory channels the child uses. Does he or she have a primary sensory channel?

Time of Day Most Receptive

Is there a best time during the day for the child to learn? Does the child work consistently well? Is the child's first contact with the task his or her optimum, or is it consistently preferable to present tasks a certain number of times?

Curiosity

Does the child show curiosity about his or her environment? Is the child's curiosity shown more regularly with certain types of objects or tasks?

Attention Span

Is there a limit to the child's attention span? Do some tasks seem to enhance or further limit his or her interest?

Memory

Does the child show visual memory; e.g., for how to use a toy or for remembering the route from the dormitory to the dining hall? After various lengths of time does the child show recall for words, signs, or actions? Does the child show auditory memory for songs, the number of beats in a rhythm, or names of objects? Can the child tactually remember the feel of the object, labeling or using it as previously shown, after a specific period of time?

Imitation

Are imitation skills present motorically or vocally? At what level are they present? Answers might include the following:

1. Does not imitate
2. Imitates with assistance only
3. Occasionally imitates without assistance
   a. Gross approximations
   b. Close approximations
   c. Accurate reproductions
4. Frequently imitates at one of the above levels

Problem Solving

How does the child solve problems, and with what task or tasks is this behavior demonstrated? At what level is the child? Answers might include the following:

1. Is unaware of problem
2. Is apparently aware but makes no attempt to solve problem
3. Uses random trial and error
4. Demonstrates trial and error with assessment
5. Assesses situation before moving and acting

Understanding of Objects

In this section I would like to describe the assessment procedure used by the examiner in evaluating the child's understanding of objects.

Object Recognition

How quickly does the child recognize an object, and through which senses? Usually this recognition is shown through appropriate use of objects in the lower level child and through labeling in the higher functioning child.

Understanding Cause and Effect

Understanding cause and effect is shown through actual manipulation to produce a desired effect.

Object Permanence

Does the child resume an activity after an interruption? Is there a search (in some capacity) for a dropped object? Does the child search for an object seen or felt hidden? If an object is displaced several times, does the child search only in the first place the object was hidden?

Ability to Match and Sort

Has the child acquired some ability to match and sort objects? At the lower levels of this task, can the child sort edibles from inedibles (visually or tactually)? Can identical objects be matched or sorted? Does the child demonstrate beginning classification abilities when he or she is sorting similar objects?

Ability to Associate Related Objects and Pictures

Can the child relate objects by function? Can he or she associate related pictures?

Awareness of Objects

The examiner observes the child's awareness of the basic attributes of objects.

Color

Can the child match and sort objects of different colors? Can he or she differentiate between similar colors? Can the child discriminate hues or shades of a single color by matching them to a color chart?

Shape

Can the child match and sort the basic geometrical shapes, beginning with three-dimensional and then two-dimensional shapes? Can the child match the geometrical shape to its representation?

Size

Can the child match and sort three-dimensional objects by size? Can he or she match and sort two-dimensional pictures? Can the child distinguish further, demonstrating the ability to sequence objects or pictures by size?

Texture

Can the child tactually match and sort fabrics, texture blocks, and two or three different grades of sandpaper?

Evaluation Report

The examiner observes whether or not the child moves easily from one task to another. When the child uses materials that differ by more than one attribute, can he or she disregard those attributes that are "declared" extraneous?

The materials used by the examiner are both formal educational materials as well as homemade and sometimes improvisational items, depending upon the functioning and interests of each child.

An evaluation report is completed for each child, and recommendations are written. These recommendations can incorporate general conclusions and specific ideas to further develop the child in a particular area, both at home and at school.

The evaluator's recommendations can specify what is considered the optimum type of school placement for the child, or they can lead to medical intervention, where indicated.

Assessment for Prevocational Training

Presented by Ronald G. Lecours
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Prevocational assessment for children who have both visual and auditory handicaps has much in common with other systems and approaches to assessment. Many of the concepts presented here are not isolated and should be used in conjunction with ideas gleaned from other sources and combined with the clinical judgments and feelings developed through experience with children who are called "deaf-blind."

Based on some experience both in and out of the field of services to deaf-blind individuals, I have developed some guidelines—my own set of clinical judgments—concerning what the term "prevocational" means when it is applied to the person who finds it difficult to learn the things that you and I do. Much of what you are going to read here is not the popular version of what the people involved in vocational rehabilitation or education generally accept. There is common ground in the field of prevocational assessment, but there is also a tremendous amount of diversity in philosophy, models, goals, and methodologies. There is not much that is static, and so it is difficult for me to present an objective point of view. There is not yet a widely accepted point of view.

The scope of this paper is to examine the different categories of assessment that happen before training under the broad ruberic of prevocational assessment. In some ways this assessment process is similar to the educational assessment; in other ways it is quite different. The similarities will be evident as we discuss the categories, and the differences will be described in some detail, mostly because there are fewer differences than similarities.

Not only does the student need to be assessed, but also we need to assess both the task to be trained and the training process itself.

Focusing on the Task

The terms "task" and "skill" are used almost interchangeably to represent that which you want the child to end up with when the teaching is over. This is what the child acquires in the lesson: what the child can do now that he or she could not do before. It is the content of the lesson (Gold, 1976a). To state that the assessment process "begins" by examining the task is a generalization, but for the descriptive purposes of this paper, and for the teacher who is considering adding a prevocational component to a basically educational curriculum, some of the elements of the pretraining assessment will be isolated from each other.

Identifying the Target

We begin at a point of contrast with other systems of assessment. Most educational assessments begin, appropriately so, by looking at the individual and attempting to catalog and evaluate the behavioral or skill repertoire and skill deficits of the learner (Sailor and Haring, 1977). The point is to inventory certain items before moving on to the next set of instructional targets.

Prevocational training can be distinguished from special education when the instructional targets and methodologies are stressed before the examiner initiates exhaustive tests of what the child does or does not possess (Mithaug, Hagmeier, and Haring, 1977). With prevocational and vocational training, the targets are at a greater distance in the sense that the behavioral objectives are often radically different from what the learner is currently doing.

By identifying the target task early in the decision-making process, the teacher operates much more efficiently and effectively. Generalized approaches that aim at nonspecific goals like "independent functioning" or "the learner's highest potential" are not seen as facilitative. Clarity of purpose leads to quality decisions.

Examining the "Value" of the Task

The prevocational tasks chosen as targets for training must be clearly "of value" to the student and the teacher. A teacher who attempts to train a skill that is commonly perceived as being "important" in itself is much less likely to encounter motivation problems in training than if either the teacher or learner views the task as nonconsequential.

When assessing the value of a task, the teacher should look at it from the point of view of the

learner. The teacher can ask the following questions:

1. What is the payoff to the learner? What problems does the training solve? Why would the learner want to learn that? For what trade does the training qualify the learner? What access to normalcy does the skill provide (Wolfensberger, 1972)? What normal work-related reinforcers does the skill provide the learner (Gold and Pomerantz, 1978)?
2. When does the payoff come? Is the skill valuable now? Is the skill functionally relevant to the learner? Will the skill still be of value in a few years? Will the skill contribute to the student's functioning ultimately in complex community settings (Brown, Nietupski, and Hamre-Nietupski, 1976)?
3. What contribution can the student make with the skill? Who is influenced by his or her skill? Who would need or want that skill?

Questions about "what's worth teaching" are essentially questions of values judgments that vary from place to place and from person to person. Many of the recent attempts to develop individual education plans and the like are formalizations of the process, a way of ensuring that these kinds of questions get asked and answered. Look to these questions and see what kind of answers you come up with. If many of your answers are "No" or "I don't know," then move on in your consideration of tasks to something that is more overtly worth the effort that both you and the learner are going to put into the teaching and learning.

Analyzing the Content of the Task

When we talk about the "content" to be acquired by the learner, we are talking about the task again; only this time we are inspecting the breakdown of the particular target task into teachable components and determining how familiar the trainer becomes with those various steps of content.

When the trainer breaks a task down into teachable components, he or she becomes thoroughly intimate with the steps of the task, the sequence of the steps, and the units of activity or information. We are not talking about the smallest components of a task, but we are asking the teacher to make a judgment as to what the "teachable" components of the task are.

At this point it is just as important for the teacher to be very intimate with the task to be learned as it is to know a lot about the child who is going to learn it; and in some cases it might be even *more* important to have a thorough understanding of the task at hand than to have an elaborate diagnosis, evaluation, and assessment of the child. Detailed knowledge of the target task is the teacher's prerequisite to reaching it.

The important questions about content revolve around the teacher making a clear, understandable, preferably written decision or statement concerning exactly what new skills the learner should be doing when the lesson is finished. Almost all teaching in the field of services to severely handicapped children adopts a behavioral perspective. When the teacher can describe the behavior that he or she wants the child to acquire, the learning has been operationalized and has been made visible. There are lots of invisible or internal changes that we are interested in developing in children, but unless we can come to some agreement as to what the change is going to look like on the outside, then we are going to have much more trouble being accountable. We must be able to verify that the changes that we say we influence are actually taking place.

Behavior description is not a goal in itself; it is a tool that we can use to help us in our teaching. It is not enough to say that we are interested in having the adolescent student acquire good work habits; we have to be able to describe what those habits are. Also, the things that we want our children to learn will be acquired much more quickly when they are stated in ways that do not allow for a lot of variability. Tasks that require learners to make judgments, where there is a range of correctness or acceptability (i.e., how "clean" is clean?), are much harder to teach and to learn. In contrast, "information" is discreet, dichotomous, and absolute.

We can often teach relatively complex tasks more efficiently by removing or reducing the variability in the responses that we ask the students to make. By allowing learners to make decisions based on information rather than judgment or by reducing, during training, the range of correctness allowable for the judgment, we are making the student's initial exposure to a problem or a task easier to solve or to acquire (Gold and Pomerantz, 1978). When "correctness" is made clear to the student, the learning takes place much faster.

The decision that you make to either teach or not to teach a particular task should be based more on *your* ability to reduce that task to a set of consumable pieces of information than on a judgment concerning the complexity of the task or

the perceived "abilities" of the learner. Sometimes a task can appear to be very "complex" in terms of its operations, but we find that it can be reduced to a set of teachable chunks rather easily. At other times, a task that appears to be somewhat simplistic can be very difficult to break down into component parts. From this point of view, an unsuccessful attempt to teach a skill leads one to ask the question "What is it about the task that we don't know?" rather than asking "What is it about the learner that we don't know?" (Gold, 1976a)

Identifying the "Entering Behaviors"

The deaf-blind child is like other children who find it difficult to learn things; they rarely "test" well. Traditional assessment of general behavioral constructs, or categories of behaviors like sequencing, crossing midline, or manual dexterity, rarely stimulates the teacher to train relatively difficult skills. To the contrary, assessment usually results in a lower level of expectation. Scoring low on tests usually leads to a perception of low potential for learning.

Assessment can be facilitative when it focuses on the specific behaviors prerequisite to the target task (Gold and Pomerantz, 1978) or what are called the "entering behaviors." This is task specific assessment, and it requires that the teacher become sufficiently intimate with the task (complexity, steps, sequences) to be able to identify the behaviors the learner needs before beginning the lesson.

The concept of entering behaviors is useful to the teacher because it provides him or her with the opportunity to make a distinction between what would be *nice* for the student to have before training commences and what is absolutely *necessary* for the learner to have before training begins. It is when the teacher is making considerations about the entering behaviors that he or she decides what the scope of the lesson is going to be. The teacher screens out those component skills that he or she is not interested in teaching at this time.

I should emphasize that I am talking about decisions that happen *after* a target task has been identified. The work is done from the top (target) down (prerequisites); an assessment of the requisites determines the scope of the lesson. Teachers in rehabilitation are often overly cautious and work from the bottom up almost exclusively; they underestimate the training power available. Often teachers begin with exhaustive lists of what they think are prerequisites to general categories of vocational behavior and spend a lot of energy training with no particular target in mind. Many of the items that are so listed are not prerequisites at all and actually are best taught within the context of training a specific skill.

For example, do you need to know how to use a socket wrench before you get into the lesson on how to assemble a tricycle? NO! As a matter of fact, that is an excellent place to learn the skill because then it is a functionally relevant skill: learning how to use the wrench is related to your being able to enjoy the bike. Do you need to have a pincer grasp before you learn to tie your shoelace? Probably. The child should learn the pincer grasp before trying to tie the shoelace.

A good method that I can recommend for screening out unnecessary prerequisites is to think again in terms of behaviors as opposed to more cognitive skills that are not operationalized or made observable. If the teacher can describe the prerequisite in behavioral terms, he or she will be in a much better position to reach the objectives.

What is a prevocational task? How does it differ from an educational or a vocational task? There is little agreement here. Functionally, in both special education and rehabilitation circles, the term "prevocational" has been interpreted to mean the following:

1. What you learn as a teenager ("It's time for him to learn that stuff.")
2. Simple, repetitive, make-work operations ("That's all he can learn.")
3. Simulation of typical sheltered workshop contracts ("This is what he'll be doing.")
4. Whatever gets us funding from those who have money ("It's whatever they say it is.")

None of these interpretations is right or wrong. Such views commonly are expressed in the profession.

In choosing a good prevocational task, the teacher should consider the following:

1. The task should supply more than the minimum entry requirements necessary for entry into the next program/environment; it goes beyond the maintenance of the status quo. It induces an elevation of expectation.
2. The skill is an age-appropriate skill (or better) and allows access to as many of the culturally normative reinforcers from the world of work as possible (Gold and Pomerantz, 1978).
3. The skill is an obvious competency; it is a skill that is needed, wanted, and not locally available (Gold, 1975). Preferably, the skill cannot be performed by most people without

training, and the trainee is seen as developing some expertise.

Considering the Learner

A second area of assessment, once the teacher has identified some targets that are worth aiming toward, is for the teacher to do some self-examination. The focus here is for the teacher to assess what his or her resources are and to make sure that there are enough of them, in terms of energy and technique, to ensure success in achieving the target objectives. The questions that we ask here are concerned with the formation of a hypothesis, an educated guess as to how the skill could be taught.

The questions to be answered revolve around the determination of two activities: (1) develop strategies that are going to get the learner to do what it is the teacher wants him or her to do; and (2) verify those strategies by observing the student's early performance on the task.

Identifying Effective Procedures

The assessment procedures that we are describing here have to do with the teacher's awareness of the various teaching techniques at his or her disposal. What kinds of teaching tools do you have in your toolbox? The point is to make sure before training that you have the necessary resources to ensure success. Some questions related to the instructional process are as follows:

1. How will the teacher organize the student's exposure to the training?
2. Will the student be exposed to the entire task or only to some portion of it?
3. Which portion should be covered first?
4. How will the teacher let the learner know what is wanted of him or her?
5. Will the task be demonstrated?
6. What categories of feedback does the teacher plan to use?
7. How much language will be used?
8. Will language-based directions or feedback distract the learner's attention from the task?
9. What kinds of feedback will work?
10. How does the instructor plan to correct errors?
11. How can the teacher ensure that fewer errors will occur in the next trial of training?

What do you do if you decide that you do not, in fact, have the resources for doing the kind of training that you think is necessary. What happens when you forecast that you cannot scrape together the training power that you think is necessary? The first thing to do is to stop before training ever commences. If you begin training without having available to you the powerful training techniques that you think are necessary, then you are handicapped in your ability to train. You might be mildly, moderately, severely, or profoundly handicapped in your ability to train. When you are in this position, the likelihood that teaching will be successful is drastically reduced. Deaf-blind learners do not need to run that risk: the risk of failure. They have had enough of that.

Whenever teachers or students experience frequent failure to teach or learn, levels of expectancy on the part of the teachers and levels of motivation on the part of students plummet or disappear almost completely.

So what do you do? My very strong suggestion is that you refuse to lower your targets and that you make a pledge not to compromise quality of instruction for the sake of quantity (Gold, 1976b). One might decide to go with fewer targets, but never toward showing little or no growth in many individuals. A much more productive strategy is to demonstrate some significant acquisition of skills by individuals who have been labeled deaf-blind. Teachers should stress quality of performance over quantity.

Assessing the Student's Performance

The topic worth discussing here is what might be called functional assessment, or assessment based on the learner's early performance on the actual task to be learned. This can be done quite easily when you have performed the analysis of content that was described above and you have the operations laid out as a series of clearly stated steps. Somewhere in the course of the first or second training session in the early trials, it becomes evident to the trainer that the learner already knows some of the steps of the task or has acquired some of the steps very quickly. Later, it also becomes quite clear which steps of the task the learner does not know. At this point the trainer has a much better idea of what needs to be taught and is in a much better position to evaluate the course of training.

When the data from the training are reviewed, the trainer can tell precisely what component parts of the task have been acquired and which parts are still a problem for the learner. It is not whether or not the learner knows the task, but that he or she

has, for example, ten-twelfths of the steps needed to complete the task. In some cases a certain number of steps of a task are difficult for the learner to acquire. Our approach is to assume that the teacher's early judgment as to what constituted a teachable component was somewhat inaccurate, and the content task analysis needs to be revised down in terms of the size of the teachable components. The size of the units of information need to be reduced because they are not "consumable" steps to the learner.

When the trainer has a precise definition of the behaviors to be acquired in the form of a content task analysis, the learner's time in training is spent much more efficiently. The trainer aids the learner and corrects quickly and efficiently only very small errors in performance because the trainer knows exactly what he or she is looking for and when the learner is "off task."

Teachers often can learn more about how to be successful in training by actually doing the training and examining the results, rather than spending a lot of time in formal testing and doing only little training.

Conclusion

A prevocational program can be one task, if it is a good task coupled with good training. Prevocational assessment means being focused, knowing what you want, going after it, and getting it.

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Audiological Assessment

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The audiological assessment generally includes a case history, observations, administration of selected auditory measures, and consideration of reports from other professionals. It requires a report in which the audiologist has included (1) impressions of the individual's auditory function with and without hearing aids; (2) implications the findings have for communication, education, vocation, and so on; and (3) recommendations which evolve from the impressions and implications. If the audiological assessment is to be of value, the findings, implications, and recommendations must be communicated to parents and other professionals.

Although the audiologist is responsible for the measures administered, the assessment requires the assistance of the teacher who is familiar with the child being evaluated. The initial audiological assessment may take an hour or so, or it may be carried out at intervals over a period of weeks before the audiologist is prepared to state impressions of the auditory deficit. Although the initial evaluation may be completed, assessment is a continuing process of further defining and monitoring the individual's hearing abilities.

Areas of Assessment

Frequently, a brief discussion of the audiological assessment is limited to a review of the physics of sound, the anatomy of the ear, the pure-tone audiometer, and the audiogram. All these things are important, but they have been covered at length in basic audiology textbooks (Martin, 1975; *Hearing and Deafness*, 1978). The measurement of hearing sensitivity (that is, the detection of speech and pure tones at threshold levels) has been overemphasized to the extent that the assessment of other important auditory abilities has been neglected. Perhaps this is because we audiologists feel comfortable with the pure-tone audiogram and its familiar patterns, and because it is a test that can generally be administered to anyone. Perhaps it is also because of the lack of standardized measurements of other auditory skills. For example, how does one assess the benefit from a combined auditory-visual-tactile signal compared with the benefit from each of the three signals taken alone, or the benefit from pairing the three combinations (auditory-tactile, auditory-visual, visual-tactile)?

In 1974, the American Speech and Hearing Association's Committee on Rehabilitative Audiology adopted a position on the role of the audiologist in the habilitation of the hearing handicapped. The position paper emphasized that before a comprehensive plan for habilitation is jointly planned and carried out, an audiological assessment must be made. The assessment of auditory sensitivity is included in the list of components, but also included are the measurement of dynamic range (that is, how great a range from the softest sound that can be heard to the loudest sound that can be tolerated); perception of speech in quiet and in the presence of competing messages; auditory memory span; auditory closure (that is, the ability to fill in missing parts in the message which was heard); and other auditory abilities. The authors of the position paper also stated that assessment by the audiologist includes evaluating language abilities and gathering functional evidence related to the anatomical site of pathology.

Auditory Threshold (Detection)

The child who is able to cooperate in the measurement of auditory threshold needs only to respond when a sound is audible. He or she does not have to make any other judgment about it. Thresholds are measured across a range of several octaves encompassing the speech range. This produces the pure-tone threshold contour which may serve as a rough predictor of communicative function and a starting point for the selection of hearing aids.

Techniques of determining thresholds for deaf-blind children and others who are difficult to test have been well described by Lloyd (1975). A technique used with children frequently as young as two and one-half years is play audiometry. In this case the child makes a play response whenever he or she hears a sound. When softer and softer

sounds are presented, the child's threshold or near threshold levels are determined. The play response may be stringing a bead, dropping a block in a box, putting a peg in a pegboard, and so on.

The assumption behind play audiometry is that the child enjoys the "game." Tait (1977), however, reports that play audiometry is ineffective with many deaf-blind children and notes that "the social reinforcement is not reinforcing, the motor act is not fun for the children, and integration of the stimulus-response paradigm does not readily occur" (page 56). Nevertheless, results of clinical experience indicate that the procedure is valuable with some children who have impaired hearing and vision.

Another technique for measuring threshold levels is based on the orienting response; that is, the response of looking or turning toward a sound source (Suzuki and Ogiba, 1961). The procedure is this: a sound is presented and immediately afterward a light is presented—both from the same location to the side of the child. Of course, the sound must be loud enough to be heard, and the light (which serves as a reinforcer) must be bright enough to be seen. The child responds by looking toward the source of the sound and light. The light may be a string of Christmas tree bulbs, an illuminated toy or picture, or a single white bulb. Although a deaf-blind youngster does not typically turn toward a sound source, pairing the auditory and visual signals has been an especially valuable technique for use with these children (Bernstein and Roeser, 1972; Calvert and others, 1972; Dahle, 1976; Tait, 1977).

In assessing hearing sensitivity in the deaf-blind population, audiologists have used many techniques developed for the population of children who are difficult to test. Such techniques are based on operant conditioning. First, a child gives a response to a sound. The child may emit the response without prompting, or the examiner may guide the child. Second, the child is rewarded by the pleasure of the response, approval and praise from the examiner, a trinket, or a small piece of food. Finally, the reinforcement increases the likelihood that the child will repeat the response the next time he or she hears a sound. Play audiometry and conditioned orientation response audiometry are based on this paradigm, as are many other procedures. The variations are only limited by the ingenuity of the audiologist.

When working with deaf-blind children, the audiologist must consider individual behaviors and other handicaps of the children in selecting which techniques are likely to be most successful. If a child has the additional handicap of cerebral palsy, the conditioned response must be altered to be one of the easiest physical movements for the child to make. Special kinds of seating arrangement are sometimes helpful in allowing the cerebral-palsied child to make voluntary movements more easily. The child's involuntary movements and delayed responses may obscure both overt and conditioned responses to sound.

When the child with an auditory and visual impairment has additional handicaps of mental retardation or central disability, it may not be possible in the early years to secure any cooperation from the youngster. The audiologist may have to rely on observing overt responses (rather than conditioned responses), which occur when a variety of signals are presented through a loudspeaker in a sound-treated room. With respect to the deaf-blind child, Tait (1977) notes that the typical overt response is cessation of activity. "The child," he writes, "without turning, pauses momentarily in his or her rocking, humming, kicking, or grabbing behavior and then returns to his or her prestimulus level of activity" (page 54). Tait further observes that deaf-blind children give few startle reflexes, may be indifferent to directionality of the sound, and may ignore changes in the character of the sound. Further, the deaf-blind child rejects intrusion from the outside world such as the placement of earphones or the insertion of an instrument into the ear canal.

Whenever a child is multihandicapped or unusually difficult to evaluate, the audiologist is advised to use objective tests such as those which do not require any active participation but only passive cooperation. One of the most valuable and readily available of the objective tests is impedance audiometry. The test measures how easily sound passes through the middle ear and indicates when there is any change in the resistance of the middle ear. Such a change would occur when pressure in the ear canal is varied or when the stapedius muscle contracts because of a loud sound. Measures of the threshold for the contraction of the stapedius muscle (the acoustic reflex) are the basis for the differential loudness summation test that was refined by Jerger and others (1974). In this test the hearing level is predicted from the measurement of acoustic reflex thresholds for 500, 1000, and 2000 hertz and for white noise. Predictions are made by categories—normal, mild-moderate, severe, or profound—rather than by specific decibel levels. The prediction is accurate about 60 percent of the

time and is either accurate or within one category over 90 percent of the time. In addition to the level of hearing, the audiometric contour can be predicted as being flat, a gradual slope, or a steep slope with the same accuracy as for the prediction of level. While 60 percent accuracy may not be impressive, it should again be emphasized that the determination of hearing levels is not made on the basis of any single measurement or observation but on the basis of all information available.

Passive cooperation is necessary on the part of the child, who will have to tolerate an examination of the ear canal with an otoscope, insertion of an eartip in one ear canal, variation in air pressure in the canal, placement of an earphone over the opposite ear, and a variety of loud sounds. Some children resist this and the test cannot be performed satisfactorily if a child is crying, screaming, or moving. Some mild restraint may be used with a cerebral-palsied or hyperactive child, but mild restraint is not ordinarily effective with a deaf-blind child who vigorously resists the procedure. In some cases, a child may be given a mild sedative by the physician prior to undergoing impedance measures.

Other objective measures may be used, but they are not readily available to most audiologists for routine evaluation. Simmons (1977) developed the crib-o-gram technique, which is used for testing newborn infants before they leave the hospital. Moderately loud sounds are presented at regular intervals by means of a loudspeaker. A sensor attached to the bassinet detects the infant's movements from a few seconds before until a few seconds after each sound. This technique simply identifies the presence or absence of a substantial hearing loss. In the future such a technique may be useful in determining hearing levels near threshold when administered to older infants, using more meaningful sounds in an acoustically controlled environment.

Two other techniques that have been used experimentally are (1) measurement of changes in heart rate; and (2) tracing of the respiration pattern when sounds are presented. Davis (1978) notes that neither method has been adequately validated.

A procedure that has been investigated in some detail over the past several years is electric response audiometry. This term refers to any measuring technique for electric responses of the auditory system produced by sound. Most recently the electric responses arising from the brainstem have been clearly described. From among the types of electric response audiometry, Davis (1978) chooses brainstem response audiometry (with sedation) for young children and others who are difficult to test. Unfortunately, children who are neurologically impaired and multiply handicapped are the ones for whom electric response audiometry (at least at the cortical level) may be the least useful (Price and Goldstein, 1966; Northern and Downs, 1974).

Other reasons can be given to explain why objective tests cannot always be relied upon to give an accurate picture of a child's hearing sensitivity. First, the audiologist may "interpret" the responses when they are difficult to distinguish from the background noise. This may occur in measuring the acoustic reflex threshold in a child who is rather active. Second, the test may not be sensitive to certain kinds of audiometric patterns. The brief tones of lower frequency used in brainstem response audiometry have an effective acoustic spectrum which is broad, making it difficult to identify an ascending audiometric contour. Third, when the test is not a threshold measure, it will result in errors in a certain percentage of cases. This was already noted in the case of the differential loudness summation test.

Auditory Discrimination

Sometimes the report from the audiologist gives only detection thresholds without indicating what use the child can make of the sounds that can be heard. Instead of indicating a youngster's ability to distinguish among sounds, the audiologist writes "could not test" or "no response." Perhaps a score of 0 percent is given for the ability to repeat words. All of these things suggest that the child has no ability to differentiate among sounds. In reality, virtually any child who can hear sounds can make some distinctions among them. The distinctions may be limited, and their measurement may be gross. Nevertheless, knowledge of the child's capacities to use sound gives an indication of where to begin in auditory training, whether the child is making progress in such training, and what amplification is appropriate.

Auditory discrimination is used here to mean the ability to give different responses to different sounds, as opposed to auditory recognition and comprehension. Assessing discrimination abilities for pitch, loudness, and duration of sounds may give information about the child's ability to recognize and produce the suprasegmental aspects of speech. Other terms for these aspects are intonation, stress, rhythm, and juncture, but these are simply combinations of pitch, loudness, and

duration. The tasks used in assessment may be used and enlarged upon in auditory training.

In a discrimination task, sounds are presented to a listener who decides in which of two categories each sound belongs. A child may be presented with a large white card on which there are two black figures, a square and a rectangle. The rectangle is about three times as long as it is high. If the child cannot see the difference between the figures, rough burlap may be pasted on the smooth card to provide textured representation of the two shapes. The audiologist then points or guides the child's hand to indicate that he or she is to touch the square to indicate a soft sound and the rectangle to indicate a loud sound. When the child hears a loud sound followed by a soft sound, he or she touches the rectangle and then the square. At first the difference needs to be very great (maybe 20 decibels) to ensure success. Later the difference in loudness can be gradually reduced until the audiologist has found the smallest difference in decibels that the youngster can consistently distinguish. Any sound that is audible to the child can be used, but speech is preferred since it is meaningful and practical.

Other discrimination exercises can be done with pitch. A man's voice can be associated with the rectangle, and a woman's or child's voice can be associated with the square. If an extra clue is needed at first, the male voice can be made louder since greater loudness has already been associated with the rectangle. If this is too difficult, tones that are one or more octaves apart can be used. If it is too easy, the same voice can produce syllables of different pitches.

A similar task can be presented for judgments of duration. In this case the square represents the shorter duration and the rectangle the longer one. Again, the difference is exaggerated at first: "buh" compared with "buh-buh-buh-buh-buh." The difference in duration is reduced depending on the child's success. Another task would be counting the number of syllables in an utterance.

These kinds of discrimination judgments cannot be given by the audiologist until the child has an understanding of what is expected. This is not likely to occur in the deaf-blind child before exposure to a lengthy period of regular, formal programming by a teacher of the hearing and visually impaired.

At Clarke School for the Deaf, a two-choice discrimination test is used for children with severe and profound hearing losses (*Auditory Training Handbook*, 1971, page 32). The test is a series of five successively more difficult discrimination tasks which require duration, loudness, and pitch judgments. The child is first told the words or sounds in the pair, and is given a chance to look and listen. Then he or she just listens as each pair is presented three times at random. The child responds after each of the six presentations by repeating or pointing to a visual representation of the item.

1. In the first pair, "ball–baby," the listener needs only to observe the duration of the words in order to make the correct choice since "ball" is one syllable and "baby" is two syllables.
2. The second pair is "moon–stick," both one-syllable words. It might still be possible to make the distinction on the basis of duration since the word "moon" is slightly longer than the word "stick." Additional clues are offered by the contrast between voiced and unvoiced consonants and a large difference between the second (mid-frequency) formants.
3. The third pair is "o'o–sh," or written in the International Phonetic Alphabet /u/–/ʃ/. In this case duration cannot be relied on for making the distinction. The contrast in the pair is between a voiced vowel and an unvoiced consonant. In other words, it is a choice between a lower pitched, louder sound and a higher pitched, softer sound.
4. The fourth pair is "o'o–a(r)" or /u/–/ɑ/. In order to distinguish between these two vowels, it is necessary to observe the difference in frequency pattern, specifically the contribution of the first (low-frequency) formant. The second and third formants are relatively similar, but the first formants are separated by more than an octave.
5. The final pair is "o'o–ee" or /u/–/i/. Here it is necessary to distinguish between the second formants because the first and third ones are relatively similar.

Other simple tests could be constructed by the audiologist in which a child makes similar distinctions between members of a pair. The response given by the child would have to be selected individually, and the teacher's suggestions would be helpful in choosing the response. Some additional discrimination tasks are the following:

1. A two-syllable word accented on the first syllable versus a two-syllable word accented on the second syllable; for example, "*se*ven–Ju*ly*" or "*ta*ble–pre*pare*." Nonsense syllables could be used such as "*la*la–la*la*." Accent or

stress is ordinarily a combination of higher pitch and increased loudness. In these illustrations both pitch and loudness may be varied, or just one may be varied at a time.

2. A word which is accented on only one syllable could be contrasted with a word which is accented on each syllable; for example, "*se*ven–*down*town" or "pre*pare*–*air*plane" or "*la*la–*la*la."
3. Pairs of three-syllable words with contrasting accents; for example, "twenty-*one*–*seven*ty" or "lala*la*–*la*lala."
4. A phrase with rising pitch versus a phrase with a falling pitch; for example, "I am here–Where is he?" (Questions, of course, typically have rising intonation.) Again, the task is to identify the pitch change, not the words. The speaker could just as easily say "lalala" with rising and falling pitch.
5. A pattern with a pause after each two syllables versus a pattern with a pause alternating after the first and third syllables; for example, "*buh-buh buh-buh*" contrasted with "*buh buh-buh-buh buh buh-buh-buh*
6. Any of the preceding tasks can be presented as a same or different judgment. For example, the pair "*se*ven-*se*ven" would be the same; "*se*ven–Ju*ly*" would be different. In responding "same," the child could touch a pair of identical circles; in responding different, he or she could touch a pair of different shapes–a circle and a sunburst. Alternatively, he or she could sign "same" and "different."

Auditory Recognition and Comprehension

Auditory recognition is identifying sounds; auditory comprehension is understanding sounds. The distinction between them is not always clear-cut. Some tests of auditory recognition require a listener to point to a picture that is named. Such tests are frequently unsuitable for multihandicapped children because their errors may be due to poor vision or low intelligence rather than defective hearing. The use of objects instead of pictures might be helpful in this case. If a child has sufficient hearing and language abilities, a test using phonetically balanced words, such as the CID W-22 wordlists or Haskins kindergarten wordlists, might be used. In these tests the child repeats each of the words. When necessary, because of unintelligible speech, the word may be fingerspelled or communicated in some other way. Auditory comprehension can be informally evaluated by conversation. Tests of auditory recognition and comprehension would be possible only if the child were hard of hearing rather than deaf, or if the auditory signal were supplemented by a visual or tactile signal.

Auditory Discomfort

The audiologist must find the level at which sound causes discomfort. The range from the detection level to the discomfort level describes the child's dynamic range. A very narrow dynamic range would indicate that special precautions must be taken in selecting a hearing aid that will make sound audible but not uncomfortable.

In determining the level of discomfort for a multihandicapped child, the audiologist frequently has to use gross measures. The audiologist may simply increase the level of sound until he or she observes a grimace. Since the acoustic reflex threshold is related to the level of discomfort, it might seem a logical substitute. Holmes and Woodford (1977) studied the relation in deaf children and concluded that the threshold of discomfort could not be estimated from the acoustic reflex threshold. Nevertheless, in the absence of a behavioral response, the acoustic reflex gives an approximation of the threshold of discomfort.

A potential problem arises in administering a noise loud enough to be uncomfortable. It may cause the child to react negatively so that the evaluation must be discontinued or it may produce unpleasant associations connected with the examination. Whenever possible, it is helpful to communicate the idea that if the child indicates discomfort, the cause of the discomfort will be immediately withdrawn. Also, these tests should be given as close to the end of the assessment as possible.

Auditory Localization

Locating a sound source is of special importance to the deaf-blind child, and auditory localization ability should be assessed whenever possible. The assessment can be made with hearing aids, either monaural, binaural, or both. Audiologists generally consider it necessary to have binaural amplification in order to indicate the source of a sound, but this can often be done with monaural amplification if an ear-level aid is used. When the head is moved from side to side, changes in the intensity of the sound level in one ear give clues to the location of the sound source.

No standard procedure exists for assessing auditory localization. If a testing room has two or more loudspeakers, they can be used as the sources of sounds in a formal evaluation. An informal evalua-

tion might use a more realistic setting of an office or corridor. The audiologist and possibly an assistant can produce a variety of sounds such as speech, whistling, humming, finger snapping, and jingling keys. The listener can turn or point toward the sound source. This part of the evaluation could also be done outdoors where a variety of sounds might be present. Depending on the individual, the procedures might be done with or without the contribution of visual clues.

Audition Supplemented by Vision and Taction

To determine how much a child benefits from hearing when it is supplemented by visual clues, some of the tests previously described could be given using audition alone and then using audition plus vision. This might be particularly helpful in evaluating auditory recognition and comprehension. The youngster would use both hearing aids and glasses so that an estimate could be made of his or her performance under optimal conditions. This may give the best basis for predicting how the child will perform in realistic communicative situations.

Similarly, sound might be paired with vibration in order to determine whether it contributed significantly to performance on auditory tasks. This might be done by using the bone conduction receiver of the speech audiometer or using a hearing aid that has two receivers—air conduction for the ear and bone conduction for the hand.

Finally, all three signals—sound, sight, and vibration—might be combined to determine whether performance can be improved. While improvement can reasonably be expected, clinical experience has shown that it is not a certainty. In some children, performance appears to deteriorate when input from another sense is added to the auditory input.

Auditory Monitoring of Speech

As a part of the evaluation, the audiologist may observe whether vocal performance changes with and without amplification. When amplification is used, vocalizations may become more frequent, speech may become softer and more clearly articulated, and voice quality may become more natural. On the other hand such changes may not occur immediately or may be too subtle to be detected by the ear.

Other Communicative Abilities

Some assessment should be made of communicative skills other than audition. The audiologist should note how responsive the hearing and visually impaired child is to visual signals. A formal or informal assessment might be made of speechreading. The audiologist might note how well formal signs could be understood or what kind of natural gestures were correctly interpreted.

The audiologist needs to observe how responsive the child is to vibration and being touched. When the youngster's chair is surreptitiously tapped or he or she is unexpectedly touched on the back, it should be noted how he or she responds, if at all.

Aided Performance

An important part of the audiological assessment is the evaluation of aided performance. With multihandicapped children, this is best done (1) by formal measures carried out in a sound-treated room; (2) by informal procedures in a more realistic environment; and (3) by observations of parents, teachers, aides, and others. Parents are sometimes asked to keep a log in which they note their observations. The audiologist carries out the formal and informal evaluation, discusses the child's performance with the observers, and makes recommendations concerning the use of hearing aids.

The type of hearing aid most suited to deaf-blind children is probably the individual, personal hearing aid, rather than the group auditory training unit. Group units may have little advantage since the teacher and child are ordinarily very close to each other, and one teacher ordinarily works with only one or two children at a time. An FM amplifying system may have some advantage, however, in communicating auditorily at a distance such as might be done in mobility training.

Binaural hearing aids should be evaluated as soon as a child has made a successful adjustment to a single hearing aid. Every deaf-blind child should have the opportunity of evaluating binaural hearing aids over a protracted period of time if there is any likelihood that a second hearing aid will provide additional benefit. In the evaluation of binaural amplification, parents and teachers should be advised to look for specific differences in performance, such as improvement in mobility skills due to better auditory localization and improvement in ability to focus on a particular sound in a background of noise. On the negative side, one should also look for possible confusion from the binaural signal in the case of a child with central impairment who might not be able to integrate the two signals.

Communication Between Teacher and Audiologist

Once the audiologist has completed the assessment, he or she writes a report that includes impressions, implications, and recommendations. The audiologist needs to communicate his findings to others who are concerned with the multihandicapped child. The audiologist rarely fails to report his or her findings, but often fails to communicate them. Audiological reports are frequently so full of jargon and technical comments that they may be almost meaningless to a person who is not an audiologist. A teacher might wish for a Rosetta stone to translate the audiological findings into practical information.

Audiologists should realize the necessity of communicating in a common language. For instance, the language used to communicate with another audiologist differs from the language used to communicate with teachers and other professionals; and the language used with parents is different again. An illustration of how the same individual uses different languages can be found in a fascinating book, *The Five Clocks* by Joos (1967). Recognizing this concept and using a common language will help resolve the communication problem that sometimes exists between audiologists and others.

Other possible ways to resolve the problem are conversations between the audiologist and the teacher and discussions in interdisciplinary staffings. Thomas (1977) commented on the lack of communication among professionals and their need to share information in the best interests of the child. Tait (1977) observed that "an audiologist working as part of a team soon learns to speak in commonsense terms about the abilities and limitations of the child's auditory system" (page 60).

Audiological Impressions and Implications

Suppose the audiologist has reevaluated Mary, a seven-year-old child with an 85-decibel sensorineural hearing loss for each ear, no measurable thresholds above 1500 hertz, and a dynamic range of 30 decibels. In addition to this information, the audiologist should provide answers to the following questions:

1. With her hearing aids, can Mary detect an ordinary conversational voice? A soft voice? A whisper?
2. Given all possible benefits from auditory, visual, and vibratory signals, how much can she understand of ordinary conversational speech about familiar topics? Of a closed set of familiar phrases?
3. With her hearing aids, can Mary detect high-frequency sounds such as sibilants?
4. With her hearing aids, what are her discrimination abilities for suprasegmental aspects of speech?
5. What are the implications of her narrow dynamic range for the teacher?
6. Does vision make a significant contribution to audition?
7. Does vibration make a significant contribution to audition?
8. Is Mary's speech consistent with her hearing loss, other handicaps, and habilitation history?
9. To what extent is her language deficient?
10. What is Mary's primary means of communication?
11. Has any aspect of auditory communication changed since her last evaluation?
12. What is her potential for oral communication?

Obviously the audiologist will not be able to answer all these questions. Nevertheless, the list suggests areas for consideration and comment in the audiological report.

Audiological Recommendations

The audiologist's recommendations should relate to hearing aids, other communication devices, hearing therapy, education, referral, and reevaluation. The recommendations concerning hearing aid use should include specific models of individual aids to be obtained (or the characteristics of the aids), under what circumstances they should be used, what settings are preferred, and whether a group aid should be used in class. The audiologist may also recommend other devices for alerting or remote communication. Findings during the audiological assessment give some basis for recommending emphasis on auditory training or speech production or other areas of hearing therapy. Suggestions may also be made as to the likelihood of success in educational placement. Changes in auditory function may suggest the need for referral for otological reevaluation. Finally, the audiologist should set the date for the next audiological assessment.

Some recommendations should be made jointly by the professionals concerned, particularly those recommendations that deal with educational placement. This will avoid conflicting advice to parents

and give them greater assurance that they are doing what is best for their child. The ideal method of arriving at group recommendations is, of course, through multidisciplinary staffing.

When the audiologist's report does not include needed information, the teacher should contact the audiologist to resolve the problem. The teacher might invite the audiologist to observe the child in class. Immediately after the observation would be an ideal time to discuss the implications of the audiological findings. Such an observation and discussion should be mutually beneficial. Once the audiologist becomes more aware of the things the teacher needs to know, he or she is more likely to include them in future reports.

Teacher Participation

The teacher's observations of a particular child are valuable to the audiologist because he or she has seen the child over a long period of time and in comparison with other children. He or she can give observations on how the child uses hearing aids in the classroom, problems with hearing aids, and changes in communicative ability. Additionally, the teacher can alert the audiologist to unusual behaviors which would be likely to cause difficulty in the testing situation. The teacher can also share information about the effects of a third handicap on the deaf-blind child. Observations of the teacher, which are contradictory to previous audiological findings, will alert the audiologist to pay special attention to certain behaviors. Information about the vocabulary the child can recognize auditorily will help the audiologist determine a speech reception threshold.

It is helpful if the teacher can accompany a child who is difficult to test. The familiar presence ordinarily makes a child easier to evaluate. This also provides an opportunity for the teacher and audiologist to exchange information.

The teacher can often carry out activities that can make the audiologist's evaluations more productive. To prepare the child for play audiometry, the teacher can work on activities such as dropping a block in a box after an auditory signal. The teacher is likely to know what kind of response the multihandicapped child is best able to produce. If a child resists having a tip inserted in his or her ear for impedance audiometry, the teacher can gradually accustom the youngster to this procedure by first getting him or her to place a piece of cotton near the ear, then in the concha or bowl of the ear, then in the ear canal. The length of time the cotton is in the ear can be extended gradually from a couple of seconds to a minute. Next, an earplug is substituted for the cotton. Then the teacher and child together place the earplug, and finally the teacher inserts it. Similar procedures using handkerchiefs, hats, and earmuffs can help to prepare a child to tolerate earphones over the ears.

Audiological Monitoring

The initial audiological assessment of a multihandicapped child is seldom carried out in a single session. When the assessment is completed, the child should be seen at least yearly for a complete reevaluation. An electronic check of hearing aids and a behavioral check of aided performance at six-month intervals are mandatory if amplification is to be used to the greatest benefit of the user.

The audiologist needs to continue to monitor hearing abilities so that any progression in the hearing loss will be discovered early and appropriate steps taken for medical referral, change in amplification, and so on. In the early years hearing sensitivity may appear to improve as the child learns to listen better for threshold levels. This finding may also warrant a change in amplification.

In the young child it is not always possible to measure all the aspects of hearing that are of interest. The[y] can be explored over a period of time as the [child] gets older. A continuing series of evaluations wi[ll] help to document change in auditory abilit[y], particularly in the areas of recognition and comprehension. Such change, or lack of change, may be sufficient reason for altering some aspects of the habilitative program. Periodic retesting also provides the opportunity for a reconsideration of all previous recommendations.

Audiological monitoring must be paralleled by a continuing dialogue among professionals and, of course, parents. Only through such interchange can the audiological assessment be of optimum benefit to the deaf-blind child.

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Assessment Techniques in the Classroom

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My presentation will be a description of some techniques that I have found helpful in the assessment of deaf-blind students in the classroom.

The first thought that comes to my mind when I hear the term *assessment* is *assets*. What are the student's assets? First of all, I make a list of the student's strengths and the qualities that make him or her likable. This process makes me appreciate the student; in turn, he or she feels good about himself or herself and so we start off on a high point. The list also provides a basis for work on the student's weaknesses. The student's parents or surrogate family are a vital source of information. They are the teacher's partners in the child's education. I feel my purpose as a teacher, in assessing a student, is to cooperatively set goals and plan a relevant program with the parents. This should lead to the implementation of procedures and activities both at home and school and enable the student to become as competent as he or she is able and to feel good about himself or herself. Assessments made at home and school show what the student can do in a comfortable situation; that is, in a familiar environment with familiar people.

The student's cumulative file usually contains pertinent medical, ophthalmological, audiological, and psychological information. It also should contain a record of educational experiences that will give the current teacher a picture of the student as seen by others.

The second tool that I use is a list of questions, the answers to which will enable me to plan appropriately. I look for the answers through the observation of an interaction with the student and from input of others who work with the student. I observe the student's mental, physical, social, and emotional behaviors to find out what he or she can do rather than what he or she cannot do. The list of questions is as follows:

1. What does the student do when left alone?
2. How does the student behave with his or her peers?
3. What does the student do with toys and familiar objects?
4. How does the student behave in a familiar situation; for example, does he or she anticipate what is going to happen in the kitchen?
5. How does the student behave in an unfamiliar situation?
6. What does the student do in a structured versus unstructured activity?
7. How does the student communicate his or her needs, likes, or dislikes?
8. What is the student's reaction to physical contact, natural gesture, speech, or signs?

In getting to know the student, the teacher needs to know the following:

1. What moods have been observed and when?
2. What causes fear, anger, or frustration?
3. What gives the student pleasure or displeasure?
4. What motivates the student?
5. To what does the student attend and for how long?
6. How does the student move and use different parts of his or her body?
7. Is the student aware of his or her name or belongings?
8. How does the student use his or her senses (smell, touch, taste, residual vision, and hearing)?
9. How do I feel about this person?
10. How do I feel about what he or she does?

In observing the student I need such a checklist or method of recording what I have seen and where the student is functioning so that a program can be designed to meet his or her needs. I have to know what I am looking for and to be able to see the student as an individual.

To become more sensitive to the student and to really see what he or she is showing me, I have found it valuable to make three different kinds of observations. At first this took a lot of time and thought; however, with practice this technique becomes automatic and is a natural part of my ongoing assessment:

1. I observe the student's appearance and behavior without making any interpretations or forming any opinions.
2. I observe the student and make a list of possible explanations of his or her behavior. No matter how unlikely they may seem, I think about them because sometimes I may jump to the first obvious, but not necessarily correct, conclusion. This exercise enables me to be open to other possibilities.
3. I observe interactions between the student and myself. I note any verbal or nonverbal messages, feelings, or expectations on both sides and how these affect our communication and influence our behavior.

The use of the three types of observation is particularly helpful for problem areas.

The teacher should be familiar with a variety of assessment tools in order to choose those which fit the needs of a particular student. I try to acquaint myself with different tests and scales that are used by speech therapists or teachers of the visually handicapped, mentally retarded, and hearing impaired. Some of these may be appropriate for a deaf-blind student with some adaptation. It is sometimes difficult to use a new scale after I have become familiar with an old one. But, since I encourage my deaf-blind students to be flexible, to adjust to change, and to benefit from new experiences, then I must expect the same from myself. Assessment techniques are subject to change because they are an integral part of the continual procedure of planning, implementation, and evaluation of a program in the classroom for an individual student whose needs also will change.

In the "List of References" the reader will notice a concentration of cognitive and language scales because these are the areas which should provide the foundation of all we do in the classroom. The ultimate responsibility for the development of language and cognitive skills rests with the student. We can manipulate the deaf-blind student through certain exercises, activities, and movements. However, the use of language and the discovery of how to solve problems are things that the student must experience. By pinpointing where the student is in these areas, we can provide a learning environment and share experiences with the student that will help him or her develop in these areas.

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